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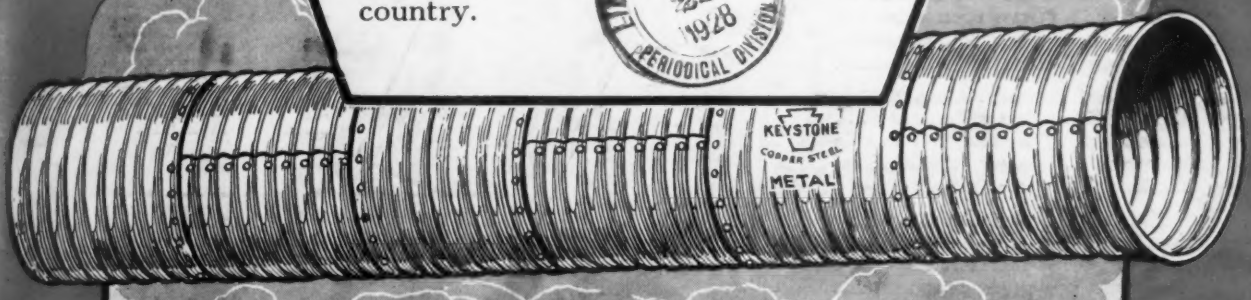

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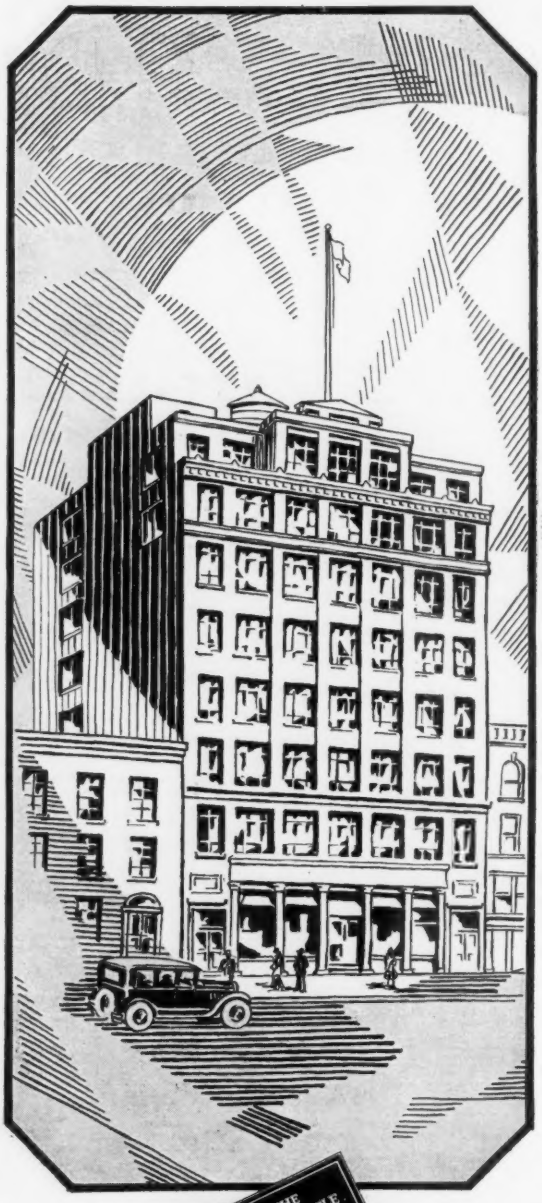

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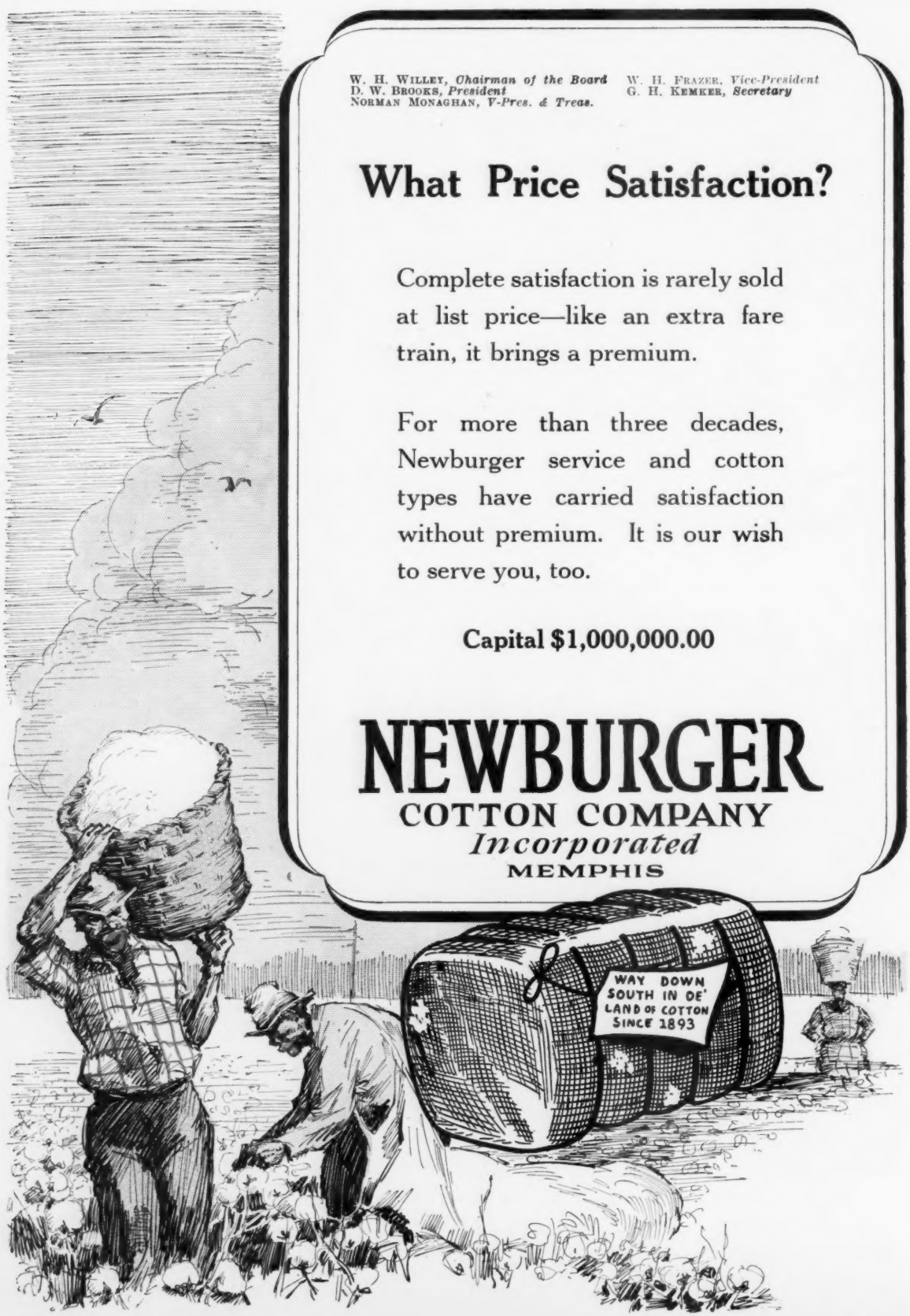


PREPARATION of RAYON FOR WEAVING

Two-Process Method—Spooling—Winding

By L. A. Palina

In the first of this series of articles, which appeared in the February issue, the conditioning of the rayon, the types of swifts, and rayon bobbins were discussed. These subjects were applicable to either the two-process method of preparing rayon filling, whereby the yarn is first spooled and then wound on filling bobbins, or the single process method, whereby the yarn is wound directly from the skein to the filling bobbin.

Two-Process Method.

In this article we shall discuss specifically the two process method and some of the problems in connection with that method.

Spooling.

In winding the rayon from skeins to spools, the rayon is delivered to the spooler girls, after having been conditioned, where desirable. The type of spooler used for spooling rayon is quite different from the ordinary spooler used for spooling cotton yarns from spinning bobbins. Instead of a vertical spindle to hold and drive the spool as in the case of the cotton spooler the spindles on the rayon spooler are in a horizontal position, and each spindle is driven by frictional contact between a wooden boss on the spindle and a driving pulley on a horizontal shaft extending the full length of the spooler.

There are two types of spindles used on rayon spoolers. The two kinds are shown at *A* and *B* in Fig. 5. At *A* is shown a spindle with a single wooden boss and a wire spring on the spindle for the purpose of holding the spool

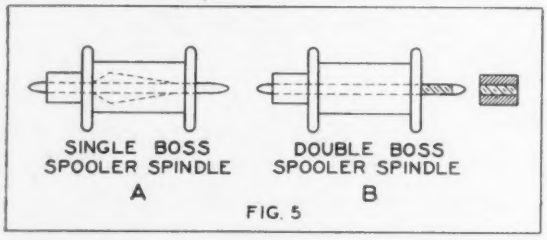


FIG. 5

in position. The other type has two wooden bosses, one on each end as illustrated at *B*. This type has no spring in the spindle and the spool is held in position by screwing the right-hand boss on the spindle after the spool has been inserted. There are advantages to each type of spindle. The principal advantage of the single boss is that it is easier to remove and replace spools, but with this type of spindle there is sometimes trouble from the spool head working away from the wooden boss, which, of course, causes a bad spool because the traverse is then not centered on the spool. With the double boss type of spindle, the spool is always centered in proper position because it is held in place by screwing the right-hand boss up against the spool. Also a better driving arrangement is used with the double boss spindle, because with this type there are two pulleys driving each spindle and a better friction is therefore obtained.

There is a slight disadvantage to the use of the double boss spindle, however, in that the spooler girl sometimes gets black oil on her hands in screwing the right hand boss

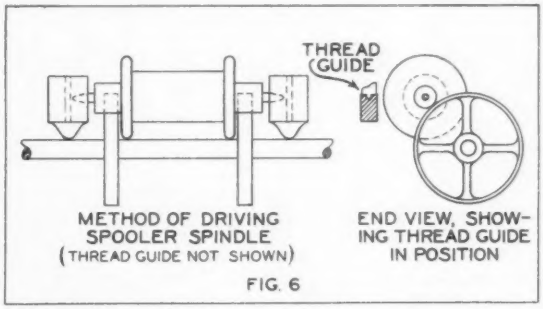


FIG. 6

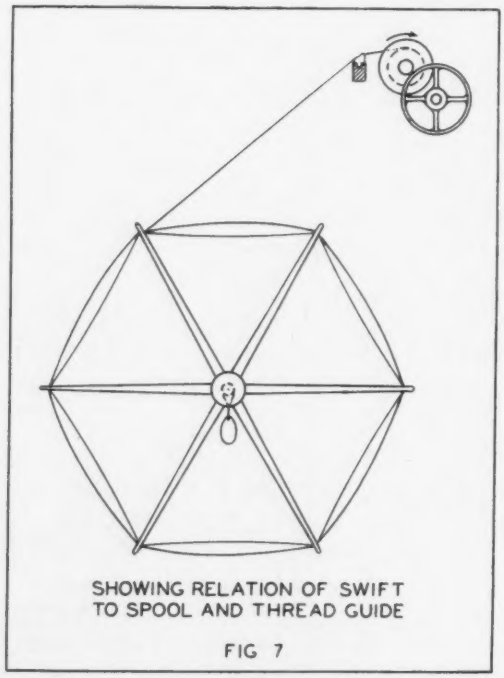
on and off. A small amount of oil is necessary on the tips of the spindle to prevent undue wear, and since it is necessary for the spooler girl to grasp the boss firmly in screwing it on and off, her hand sometimes comes in contact with the right hand tip of the spindle and becomes spotted with the black oil. This can be prevented if the spooler girl exercises the proper amount of caution.

With the single boss spindle, there is only one pulley to each spindle and naturally some slip is experienced. In this connection, we might add that we obtained excellent results with the single boss spindle by having the wooden bosses covered with a calf skin cot in the regular roller shop of the mill. Before covering these bosses with leather the diameter was turned down sufficiently to compensate for the gain in diameter in adding the thickness of the leather. In other words, the diameter of the boss after the leather is applied must be the same as it was before, so that it was necessary to remove a small shaving from this boss before covering. The leather cover was applied exactly as is done on a spinning roller except that there is no cushion underneath the leather. The cot is burned on each end to prevent coming off just as in the case of a spinning roll.

In Fig. 6 is shown the method of driving the spool by the use of a frictional spindle. The illustration shows the two boss spindle in position. Fig. 7 is a side view of a section of a spool frame. In this sketch can be seen the

direction of rotation of the skein and the spool, and the thread guide is shown in position for laying the rayon smoothly from one end of the spool to the other.

In connection with the spools used on these frames, there are two general types available, the type to be used depending upon the subsequent operation. If the subsequent operation of winding is to wind the rayon over the head of the stationary spool, a spool should be used with



SHOWING RELATION OF SWIFT TO SPOOL AND THREAD GUIDE

FIG 7

one head smaller than the other, and with this spool the spooler frame is equipped with cams to wind a cone shaped package. In other words, instead of the thread guide having a constant back and forth speed it decreases in speed as it approaches the larger head of the spool and increases in speed as it approaches the smaller head. This gives a finished package as illustrated in Fig. 8.

If the rayon is to be wound from the spools by rotation, a parallel spool is used with heads of equal size. In using this spool, the spooler frame is equipped with cams to give a constant speed to the thread guide back and forth so as to wind a parallel package. The dimensions of the parallel spool to be used in spooling rayon is of prime importance and should be given careful consideration before deciding upon the size of spool to be used. These dimensions will be discussed fully in a later paragraph.

In the spooling operation the speed at which the swifts are rotated is, of course, important. This speed will depend largely upon the denier being spooled and the condition of the skein as regards tangles. With 150 to 300 denier undyed rayon and with well formed skeins the swifts can be run safely at 150 r.p.m. or possibly higher. The higher the speed the more care has to be taken to see that the swift runs in a perfect circle and the more care must be used in getting the skeins straight on the swift before starting up. If the skein does not revolve in a perfect circle it can be readily seen that every time the high spot of the skein comes over there will be a slackening of the end between the skein and the spool and the net result is a soft and poorly wound spool. If a tangled skein is run at high speed the end will break at a tangled place rather than stop the spindle. In winding dyed rayon or any other type which is likely to be tangled the speed, of course, should be much lower and as a matter of fact should not be high enough to cause a break when the tangled place comes up.

The amount of tension to be applied to the swift in the form of a weight hanging from a strap on the hub of the swift will depend upon the speed of the swift and the denier being run. This is something which can not be given as a definite figure and simply has to be determined by the feel of the spool after it is finished. A firm, well formed spool is what is wanted, and after the speed is decided upon it is simply a question of putting sufficient weight on the leather strap to give the firmness desired. A hard spool of course is not desirable, because, in the first place, there is danger of stretching the silk and, in the second place, the tension and speed such as will cause considerable wear on the porcelain guide which lays the yarn on the spool. Of course the higher the speed and the more the tension the more this wear will be and these guides should be inspected at frequent intervals to see if they show signs of wear. In inspecting these guides a mere glance at each guide is not sufficient, because the worn spot might be too small to be observed with the naked eye but can readily

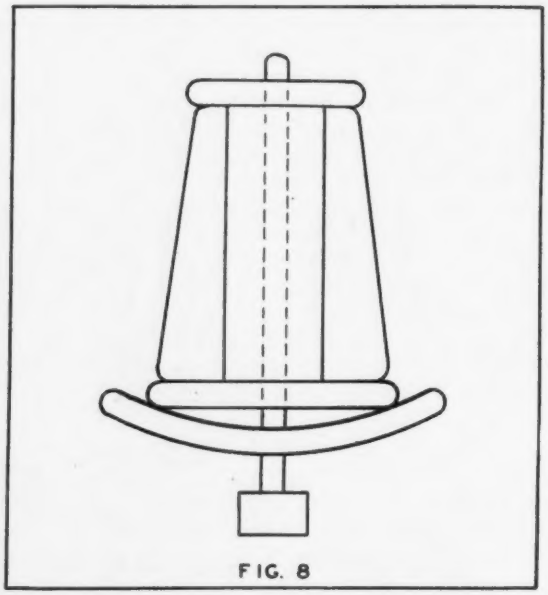


FIG. 8

be felt by the finger nail. It is well to feel each guide on this inspection and be sure there is no rough place in the bottom of the slot.

Winding.

We come now to the actual winding of the rayon on bobbins or quills for weaving. In the two process method the rayon is delivered to the quilling or winding machine on spools. There are several different attachments used on the winding machine to transfer the yarn from the spool to the shuttle bobbin and we shall discuss each attachment separately.

First comes what is known as the regular over end attachment, whereby the spools are placed on a vertical spindle underneath the winding spindle and the yarn is drawn

over the end of the stationary spool. With any over end attachment from spools, it has been found very satisfactory to fit the vertical spindle holding the spool with a cup shaped base to prevent the end from falling down and catching under the bottom head of the spool when the winding spindle stops. A view of this arrangement is shown in Fig. 8. It can be readily seen that where the yarn is to be drawn over the end of the spool that a cone shaped spool as previously described is very desirable although not essential. The rayon itself is so smooth and slippery that it will deliver over the end of an ordinary fiber headed spool quite satisfactorily, provided, of course, there are no nicks or cut places in the head of the spool. The yarn goes from the spool through a suitable tension device and then to the winding spindle. The tension device is generally two metal discs between which the rayon is drawn. The discs are held together by a combination of weights and levers and friction is thereby applied directly to the yarn. This is the regular attachment used for rewinding cotton or other yarns and some mills which already had this type of winder simply used the same attachment for winding rayon. It has generally been found, however, that this attachment does not give so good results as do some of the regular rayon attachments to be described later. The applying of friction to the yarn itself is not desirable because the filaments of rayon are rather tender, and this frictionizing of the yarn is liable to break these filaments. The tendency of the rayon manufacturer today is to increase the number of filaments in a given denier of rayon, and of course, as the number of filaments increases the size of the filaments must naturally decrease, consequently the strength of the individual filament is decreased. This, therefore, is a further reason why frictionizing of the yarn itself is not desirable. Furthermore, in winding over end from a spool sitting under the winding spindle, the yarn must be brought from the tension device up around a porcelain thread guide and then to the bobbin. Since the yarn comes from underneath the spindle it is therefore necessary for it to make almost a three quarter turn round the porcelain guide. This adds considerable friction to the yarn in addition to the friction imparted by the tension device.

Unrolling Attachment.

Next we come to the unrolling spool attachment, whereby the spool is mounted on a spindle above the winder, and the spool delivers the yarn by rotation rather than over the end. This attachment is in use in a great many mills and up to the introduction of the one process method, to be described later, the unrolling spool attachment, commonly known as the unrolling attachment, was accepted as standard practice. In Fig. 9 can be seen the method of mounting this spool and of tensionizing the yarn by applying friction to the spindle on which the spool is mounted instead of to the yarn itself. This is a very important detail, because in eliminating the friction from the yarn itself the tension is applied by retarding the rotation of the spool, so there is no danger of injuring the filaments in applying this tension.

As mentioned previously in these articles, there must of necessity be a compensating member between the rotating spool and the winding spindle, due to the variable speed of the yarn at the winding spindle caused by the traverse of the end from the high part to the low part of the bobbin. The compensator is shown in the sketch and is simply a spring wire lever held on a rod above and slightly behind the spool. The function of this wire compensator is to vibrate up and down and by its springiness to keep the tension on the yarn constant at all times, whether the traverse be at the bottom of the bobbin or at the top. There naturally must be some type of thread guide on the end of this compensator, and the best type is a roller made of wood, fiber, or porcelain. This of course is to further the idea of not letting any friction be applied to the rayon itself.

There are two general methods of applying friction to the spindle which holds the spool. In Fig. 9 there is

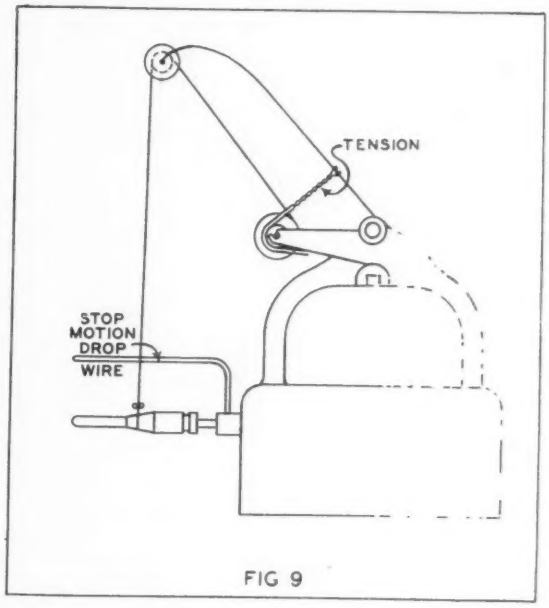


FIG 9

a tension friction band, one end of which is fastened to the frame work of the machine and the other fastened to the compensator wire itself, with a small coil spring intervening between the friction band and the wire compensator. This can be seen in the detail of the sketch. The functioning of this type of tension is as follows: The compensator wire is adjusted so that it stands almost vertical when no yarn is running through its guide. In this position the coil spring on the tension band is stretched out to its farthest point and therefore the maximum amount of tension is applied to the spool spindle. When the winder spindle is started up the natural tendency is to pull the compensator guide downward and this automatically releases the tension on the spool spindle and lets the spool revolve. It can readily be seen without going into further detail that there is an automatic equalizing of the tension due to this compound motion of the compensator's increasing and decreasing the tension as it swings upward and downward respectively. The tension on the yarn can be increased in two ways, by shortening the tension strap itself where it is fixed to the frame work of the winder or by tightening the adjustment on the compensator wire. These two adjustments should be worked out to give the best results for the particular yarn being wound and according to other local conditions.

Another method of applying friction to the spool spindle with the unrolling attachment is as illustrated by the

two views in Fig. 10. A compensator is of course used with this device as well as with the one just described, but in this case there is no connection between the compensator and the friction band. The friction band is held at one end by the frame work of the machine and hangs over the friction pulley on the spool spindle with a weight attached to the other end. The amount of weight applied is of course governed by the amount of tension desired. There are two ways of using this type of friction, one of which is to draw the yarn from the top of the spool, which would have the friction pulley pulling against the friction strap from its dead end or the end which is fastened to the frame work of the machine. The other method is to draw the yarn from the bottom side of the spool which causes the friction pulley to pull against the weighted end of the friction band. The latter method is probably more satisfactory except in winding very heavy deniers, because it gives a smoother tension on the yarn than is obtained by pulling against a dead or rigid fastener.

Stop Motions.

The type of stopping mechanism to be used on a winding machine handling rayon is important. It is obvious

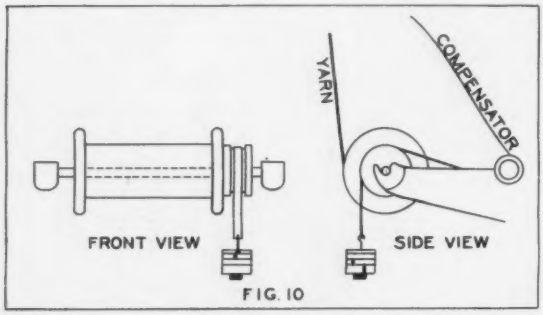


FIG. 10

that some method of stopping the individual spindle upon the breaking of an end or the exhaustion of the supply package is necessary. If the spindles were allowed to run idle for any appreciable length of time, the bobbin would become frayed at the point where the builder wheel comes in contact with the wound bobbin. Different makes of winding machines have different methods of stopping the spindles, but in any case it is necessary to have some kind of drop wire in contact with the running end.

Following the principle of eliminating all friction possible from the end itself, the most satisfactory type of drop wire has been that whereby the drop wire is mounted over and parallel to the winding spindle. This is made of steel wire and is constructed so that it is held directly above the winding spindle by the running end in operating position. Upon the breaking of an end or the emptying of the supply spool, this drop wire no longer has any support, so that it rocks in a lateral direction and stops the spindle. Some mills use a drop wire fitted with a fiber roller to further decrease the friction on the yarn. This grooved roller follows the end back and forth on the drop wire as the thread guard traverses back and forth. The wire drop wire is shown in position in Fig. 9.

Thread Guides.

Some mention has been made in these articles of the thread guide which is used to guide the yarn back and forth onto the loom bobbin. The importance of the type of guide to be used with rayon can hardly be overestimated. Again we must be governed by that important principle of eliminating friction from the yarn. Fig. 11 shows one type of guide which has been found very suitable for rayon winding. This guide is fundamentally two parallel porcelain rods separated by a space of about 1/32-inch to 1/16-inch. The function of any guide is to direct the yarn

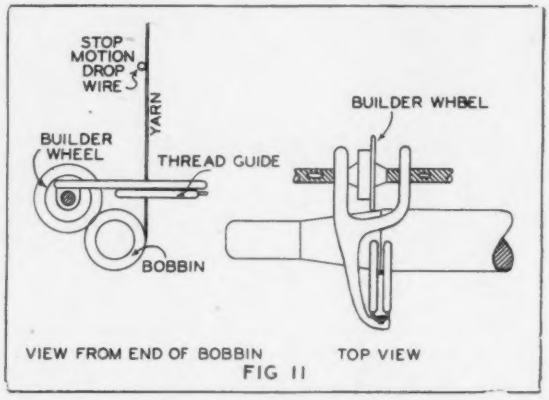


FIG 11

onto the filling bobbin. This type of guide accomplishes this function by traversing back and forth with the end running between the two rods. The rods are about two inches long, thus allowing plenty of space for the traverse of the yarn in the guide as the end runs back and forth in the guide in following the cone-shaped traverse of the bobbin. The principal advantage of this type of guide is that it applies no friction to the yarn except very lightly in guiding the end back and forth. The yarn is not deflected from its vertical line between the compensator guide and the bobbin. This straight line is shown in the sketch.

Some mills have favored a type of thread guide which uses a small fiber roller to guide the yarn onto the bobbin. This type of guide is illustrated in Fig. 12. It is necessary

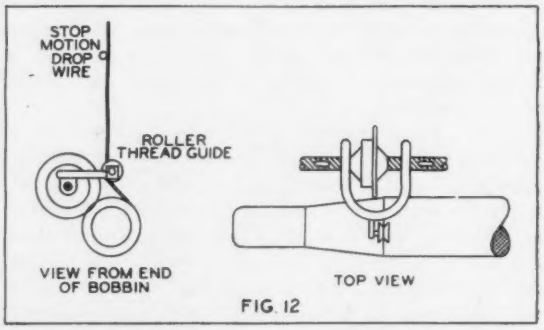


FIG. 12

that there be a certain amount of deflection from the straight line mentioned in using this guide, otherwise the yarn would not remain in the roller. The fact that a roller is used, however, minimizes the friction at this point, and this type of guide has been found satisfactory in many mills. There is one point in connection with this guide which should be borne in mind. The diameter of the roll is only about 3/8-inch at the bottom of the groove, so that at a high yarn speed the speed of this small roller is extremely high. On spindle speeds up to about 1500 r.p.m., however, there should be no trouble from this source. On higher spindle speeds, some trouble may be experienced, and in that case the parallel guide with the two porcelain

rods would probably be better.

Rayon Spools.

As was stated in a previous paragraph, the dimensions of the spool to be used with any unrolling attachment are of prime importance.

It is natural for a mill man to want a spool with a capacity as large as possible, in order to increase the production on the winders and the spoolers. The first rayon spools which were used were patterned after the ordinary cotton spool in use with spooling and warping. It was soon found, however, that this type of spool did not work satisfactorily in winding the yarn from the spool to the bobbin. By referring to the sketch which illustrates the unrolling attachment (Fig 9), it can readily be seen that the amount of tension applied to the yarn is governed inversely by the diameter of the spool, that as the spool becomes emptied and therefore decreases in diameter the tension on the yarn is obliged to increase. It is simply a matter of a shorter radius in pulling against a fixed amount of friction on the spool spindle, and the shorter the radius the more tension is applied. It was found that in using a spool with a large head of say three or four inches and

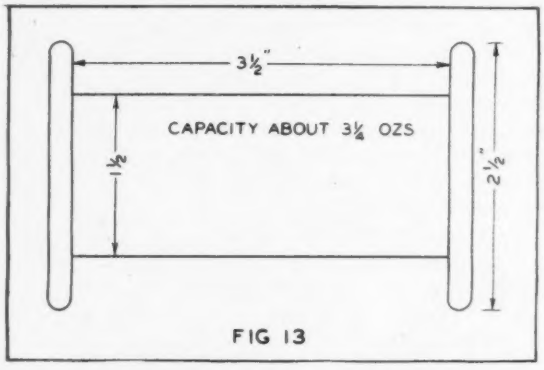


FIG 13

a small barrel of about one inch, the tension was increased to such an extent that the friction on the spool spindle had to be decreased as the spool became emptied. This left too much to the judgment of the winder girl in regulating this tension, and the result was that bobbins were wound both too hard and too soft. The tension would be loosened up for an almost empty spool and when a full spool was applied to the same spindle she would possibly forget to increase this tension and a soft bobbin would be started. This would soon be discovered and the tension would be tightened. The natural reaction of the ordinary winder tender is then to wait until the tension gets too great for the yarn and for it to break before easing up on the friction. In order to eliminate as much of this human element as possible a great many experiments were made to determine the best size of spool to use. In Fig. 13 is given a spool which has proved very popular and is found to be entirely satisfactory in winding with the unrolling attachment. It can be seen that this spool has a very large barrel in comparison to the head of the spool but this, of course is in order to prevent the large increase in tension which would result if a small barrel were used. This spool does not have the capacity of one with a larger head or a smaller barrel, but it has the advantage of giving a uniform tension in winding and a well-wound shuttle bobbin, both of which are more important than the spool capacity.

Another attachment used in winding rayon is illustrated in Fig. 14. With this attachment the yarn is drawn over the head of the spool as in the regular over end attachment but the spool is placed on top of the winding machine instead of underneath the winding spindle. The yarn is drawn over the head of the spool and through a finger type of tension rather than a disc tension. This finger tension is familiar to most mill men and is simply two sets of bars or fingers held together by a combination of weights and levers and the friction to the yarn is applied as the yarn is drawn through these fingers. After

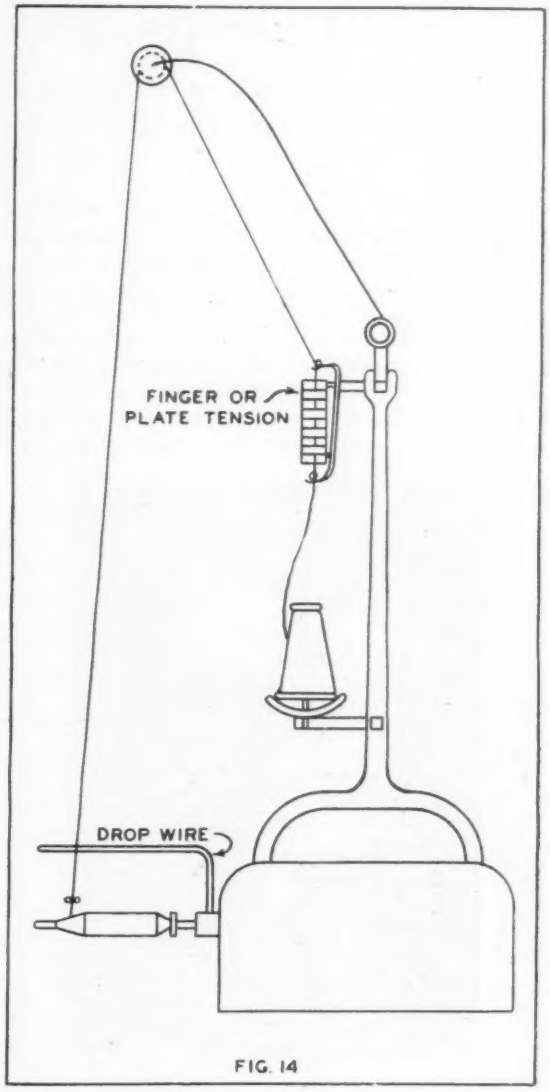


FIG. 14

leaving the finger tension device, the yarn passes through a stationary thread guide which is to prevent the yarn from pulling out of the tension device, to the compensator guide and then down to the winding spindle. The compensator and roller guide are exactly the same as is used with the regular unrolling attachment, but there is no connection between the compensator itself and the tension device. The tension plates or fingers are made of either pressed steel

or porcelain. Of course the porcelain plates last much longer than steel, but on the other hand they are also much more expensive. Both types of tension plates have their supporters. This attachment has the disadvantage of applying friction directly to the rayon, but in winding the coarser deniers this does not seem to give any great amount of trouble, and since this attachment also has a compensator, a very good bobbin is wound. One feature of this attachment which most mill men will appreciate is that it is no more trouble to rewind a soft or bad bobbin with this attachment than it is to wind from a spool. No matter how careful a mill organization is, there is always a certain amount of bad work to be rewound, and in mills using the unrolling spool attachment there is always inconvenience in rewinding the badly wound bobbins.

(This is the second of a series of articles on this subject. Those desiring to secure copies of the first installment, which appeared in the February issue, may do so by request so long as copies are available. The third article, which will discuss the one-process method of winding rayon directly from skeins to the filling bobbin, will appear in an early issue. The Editors.)

The Responsibilities of the Overseer

The Duties of These Important Key Men as Seen by the Members of the Carding Division of the Southern Textile Association

BY ROBERT W. PHILIP.

A distinctly different kind of discussion meeting was held by the Carding Division of the Southern Textile Association at the Hotel Jefferson, Columbia, S. C., on Wednesday, January 25th. All of the previous meetings of the division, like those of the other groups, have been devoted largely to considerations of practical or technical problems relating to the operation of the machinery in the different departments. At the Columbia meeting, Chairman J. O. Corn announced that the plan of the discussion would be altered somewhat, and the human aspect of the over-

J. O. Corn, Chairman Carders' Division.

seer's job considered. He selected as the general subject, "The Responsibilities of the Overseer," and the entire discussion of the day was based upon characteristics and obligations suggested by those present as constituting the ideal overseer's responsibilities to his employer and his employees.

The meeting was opened on Wednesday morning by Chairman Corn, who called upon Robert W. Philip, associate editor of COTTON, Atlanta, for the invocation. W. P. Hamrick, general superintendent of the Pacific Mills, Columbia, S. C., a past-president of the Association, welcomed the visitors to the city.

The chairman then explained the purpose of the meeting. Dividing the subject into two groups—one dealing with the overseer's responsibilities to the employer, and the other his responsibilities to the employee, he asked for the suggestions of the men as to these points, and listed each one given under each head on a sheet on the wall. After the compilation, each qualification was taken up and discussed in detail. The compiled list of prerequisites of the overseer as suggested was as follows:

THE OVERSEER'S RESPONSIBILITIES.

TO THE EMPLOYER.	TO THE EMPLOYEE.
Report Anything Wrong.	Morale.
Loyalty.	Good Example.
Cooperation.	Honesty.
Character.	Fair Treatment.
Production.	Leadership.
Upkeep of Machinery.	Loyalty.
Economy in Supplies.	Training of Help.
Quality Production.	Working Conditions.
Careful Watch Over Cost.	Promoting the Worthy.
Cleanliness of Plant.	Good Running Work.
Protection of Property.	Knowing the Help.
Improvement in Operation.	Equal Consideration to All.
Low Waste.	Courtesy.
	Safety.

The character of the discussion on these different topics was interesting. The chairman found it difficult at first to get the men to open up on things of this nature, as freely as on subjects of a technical nature, but the effect of the whole meeting was to provoke much thought and send each man home measuring himself by the standards which were set up in the discussion.

Taking up the first item listed, "Report Anything Wrong," the chairman asked discussion on it from the man who had suggested it as a cardinal point—B. C. Baker, superintendent, Kershaw Cotton Mills, Kershaw, S. C.

"It is only natural that the routine of an overseer is a little closer than that of a superintendent," said Mr. Baker, "and he will naturally run into things that the superintendent will not see, and there are some things he doesn't have the power to correct and should come to the superintendent's attention."

"In other words," inquired Mr. Corn, "you consider it an overseer's duty to report anything wrong, whether it pertains to his department or not?"

"Yes, sir," replied Mr. Baker.

"I can't agree with you there," declared T. N. Crocker, overseer of carding, Mollohon Mill, Kendall Mills, Inc.,

Newberry, S. C. "I think by doing that a man can become a trouble-maker. If a man looks after his own department he will have enough of a job without interfering with the other man's work."

"I don't think Baker means in reference to another man's job," said the chairman.

"As an illustration," explained Mr. Baker, "if an overseer should happen to go out in the warehouse and see the roof leaking on the cotton, it would be his responsibility to report it to the superintendent."

"But that comes in line with his job," said Mr. Crocker.

"The spinner should not report the carder until the carder has been told about it," said Mr. Corn.

"I think an overseer should run his job so he would be open to criticism by anybody," declared Mr. Baker. "Of course, if he happens to see something on another fellow's job he should mention it to him first, but that would not affect his responsibility to the superintendent to report anything wrong."

J. N. Alexander, superintendent, Courtenay Mfg. Co., Newry, S. C., when called upon, declared in a case of this kind it should be a case of "Go ye first to the one who has sinned."

"In all well governed and regulated mills," declared Mr. Crocker, "they have weekly conferences of the overseers, and if there is anything that is not concerned with a man's job, I think that is a good time to mention it. You occasionally run up against a proposition where there is a trouble-maker, and that fellow takes great delight in criticizing everybody else, without assuming the responsibility on his own job. If we get to reporting everything then I think we become a trouble-maker, but if we have things to bring up I think we should do it at the regular conferences—some hold them weekly and some daily—so that every man present knows all about them. I think that is the reason for these conferences; so we might keep up that good feeling which should exist; it puts every man on the same footing, and every man knows just what the other fellow has to say about it. I do not believe in talking to a man's back to the superior without saying something to him about it first. We should live by example, friendship, loyalty and cooperation. I think we should go to the man first and then, if he doesn't do it, we must appeal to the superior. I think circumstances alter cases a good bit, and we should retain the friendship and respect of our brother overseers."

"I think the overseers ought to be big enough so they can get together and talk things over, not with the idea of criticizing and not with the idea of making trouble," said Mr. Corn. "I think they should weld themselves into a close friendship."

As another illustration of his point, Mr. Baker said, "Suppose a family should be caught stealing coal off of a coal pile; an overseer ought to report that—unless you have plenty of coal to throw away."

Loyalty.

The chairman passed on to the next topic, "Loyalty," and asked Mr. Hamrick, who had suggested it, for a discussion. "I mentioned loyalty because there is nothing much about it to discuss," said Mr. Hamrick. "Loyalty seems to me to cover the whole thing. If you are loyal, if you are a genuine overseer, you cover just about all of the points on the board there. You will report things that are wrong, you will cooperate with everybody, you will do everything you can to get better production.

"I think one of the considerations is what kind of loyalty do you have. There are different kinds. One man can be loyal because he is drawing an earning, if a man has a family, that has a tendency to make him loyal, he is loyal for policy's sake. There is quite a difference in that kind of loyalty and the real loyalty that comes from the heart, which makes you want to be loyal, you feel loyal, you do not think of the dollars you are getting. If you have that kind of loyalty then you cover everything else on your list. I only wanted to mention the difference between the kinds of loyalty you might have."

"I think you have covered the whole thing," declared Mr. Cocker, "In showing that there is a bought loyalty and a natural loyalty."

Cooperation.

The chairman moved to the next item, "Cooperation," and asked William Connally, of the Pacific Mills, Columbia, to discuss this. Mr. Connally said, "Cooperation is something you cannot get along without; an overseer cannot run a room without cooperation. So far as cooperation between the different overseers in a mill is concerned—that comes under that first head—do not get to be a talebearer, always give the other fellow a chance, you can cooperate with him by telling him some of the things that are wrong. All of these things go together to keep the mill running. The individualities of some overseers may make it hard sometimes for somebody else to cooperate, the other fellow may not want to take any kind of criticism, but there is a way to handle every situation and it should be worked out."

"I think cooperation means going fifty-fifty on anything for the accomplishment of a certain end," offered P. A. Smith, general superintendent of manufacturing, Loray Mill, Manville-Jenckes Co., Gastonia, N. C. "I once worked alongside of a second hand who said I was cooperating with him when I did everything he wanted me to, but he said when I wanted him to do something for me, that I was not cooperating. There might be a case of where the boss weaver was getting a lot of bad filling, and his weavers are complaining and his seconds are up. He takes it up with the boss spinner. If he says "All right, old man, I will get right in behind that; we want to see how good we can make this yarn weave, not just make it spin good," he is showing the right spirit, but on the other hand, he might say, 'Why you have your job in the weave room, I have mine here in the spinning room' he is not cooperating. It is a case of every man being willing to do his part."

"As I understand the point," interrupted S. S. Henson, superintendent, Palmetto Mills, "it is not to cover cooperation between the overseers, but toward the employer, the man who hired me."

"That is right," confirmed the chairman.

Mr. Baker said he did not think cooperation should exist only between two overseers, but rather toward the employer toward the view of accomplishing the best for the mill. "If the carder's work runs a little tender, and the spinner wants a little less twist, and that is going to make the carder's work run a little bit more tender and he doesn't feel like he can give it to him, if it will make the work run better in the spinning room it is the carder's duty to do it."

Along this line, Mr. Corn said, " a mill might decide

they wanted to use a lower grade of cotton or make some other change in the mill. You men know it is possible, if we are not in sympathy with the management, to make a new thing show up a little better or a little bit worse. That is just a little illustration of my conception of how the overseer can cooperate with the employer."

"I think the overseers must cooperate together before they can properly cooperate with the mill officials," declared Mr. Hammond, of the Pacific Mills, Columbia.

Production.

The overseer's responsibility with regard to production, the next topic, formed the basis of an interesting and more extended discussion. Mr. Crocker began it. "I think the overseer should be a real man," he said. "He should be a man anxious to promote or increase production. I remember one time on a job we were getting less than 100,000 pounds a week and we found that we needed 120,000, and got to talking about it, and we said we'd try it, and we got busy and got it. I think that production and cost are two of the first considerations a man should have as overseer."

"What constitutes your duties as to production?" asked the chairman. "Well," replied Mr. Crocker, "the fact that my employers engage me as head of that department leads me to believe they are going to hold me responsible for it."

"It is really the carder who is more responsible for production than any one else," said S. G. Touchstone, overseer of carding, Pacific Mills, Columbia, S. C. "This is due to the fact that he first handles the product and it is up to him to lay the proper foundation to start with, by starting it up right and giving a good production to the next man. It seems to me that the responsibility lies more with the carder than anybody else. I have always accepted that responsibility as a carder, and feel if there is ever anything wrong in the mill I am partially responsible for that condition."

Upkeep of Machinery.

Methods as to the upkeep of machinery in the department were next covered, Mr. Crocker beginning this discussion also by stating that in his opinion, the overseer is entirely responsible for the upkeep of the machinery in his department.

S. L. Crolley, superintendent, Hermitage Cotton Mills, Camden, S. C., next spoke, expressing the belief that "an overseer should examine his machinery daily and see that it is in the proper shape to get the desired production."

"I agree with Mr. Touchstone about the responsibility of the carder," said C. C. Briggman, superintendent, Lancaster Cotton Mills, Lancaster, S. C. "You cannot get production out without keeping the machinery in order. I mean, by upkeep of machinery, an overseer should examine his machines from day to day and have certain periods for these inspections, and not let these periods be too long. He should inspect the pins on the Kirschner beaters, for example. Going from the pickers to the cards, he should examine at different times the settings of the cards to see if they are set as he wants them, and also examine the screens, and the lickers-in, to see if they need replacing, and all of the other parts, such as the comb boxes and comb, and things of that kind. On the drawing frames he should see that the stop motions are all kept in perfect order so as to eliminate as much uneven work as possible, and see that the trumpets are of the proper size and that the rolls are clean and in good shape. From there to the fly frames: the steel rolls should be kept in good order, and where the necks are worn and where the gears are worn, they should be replaced and the rolls taken out and repaired and put back. Also the bolsters should be kept in good shape and in good repair.

"You can always tell, in going into another man's room, almost by the time you enter, whether he is getting production. If you see bolsters on fly frames broken, and ends down, and numbers of similar small things, you can put it down that that man is not getting production out of his room."

"Well, should the overseer, in your opinion, do the inspecting, or be responsible for the inspection by someone else?" inquired the chairman.

"Both," replied Mr. Briggman.

"What do you say about that, men?" asked Mr. Corn. "Is the overseer responsible for personal inspection?"

"I think he should be," said Mr. Baker.

"I don't agree with that," said Mr. Crocker. "I think the inspection should be done independently by another man."

"I think an overseer should have an outline of a daily inspection, and not skip it," declared R. P. Barton. "Also, he should make notes of the things he sees and keep tabs on what he has looked after. Whatever he sees, rolls, saddles, or what, he should make a note of that and keep it handy where he can see it on his desk until it is attended to. He should make these inspections at least once a month anyway."

Explaining his reply, Mr. Crocker said that "I think the way to get real results is to have what might be called a maintenance man who is familiar with all of the machinery and let him make the inspections and report to the office, and then if the overseer doesn't keep up his room they will get busy. If it is left to the overseer, he is only human, and he may get a little careless on his job and let the inspections pass. But if you have a man employed by the superintendent come into the department to make the inspection, that gives a better effect, and yet the overseer is held responsible for the condition of the machinery. 'A stitch in time saves nine,' and on a certain machine you may have a worn gear, and when the maintenance man reports that and you fix it you have saved trouble, but if you do not it will spoil a whole room, just like one rotten apple will spoil a basketful."

"Isn't that maintenance man human?" asked Mr. Corn. "Won't he get careless, too? You are responsible to the management just the same as he is."

"But that constitutes his whole work," replied Mr. Crocker. "If I had nothing to do but inspect I could cover it thoroughly, but where you have the other things to do in running a room, you cannot pay the necessary attention to it."

"I would like to say in connection with keeping up the machinery that it works very well where you have plenty of supplies," said H. P. Cannon, of the Arkwright Mills, Arkwright, S. C., "but I have worked in some plants where this thing of getting enough supplies to keep up the machinery was something else. In speaking of walking through a mill and noticing whether a man is on the job, sometimes that is not fair, as he could do better if he had the parts made by the makers of the machinery to use on his equipment."

"I agree with that," responded Mr. Briggman. "I took it for granted, when I said what I did about that, that everybody was getting all the supplies they wanted."

Mr. Hamrick at this point told of an incident. He said he had heard Captain M. G. Stone tell a story that illustrated a point. The Captain years ago visited the mills at Clifton, and says he saw there a condition he considered the worst of its kind he had ever seen in a mill. But when he got home he went through his own mills and found a similar condition much worse than the one he had seen at Clifton. "That shows how easy it is for an overseer to get used to things and not notice them," Mr. Hamrick emphasized. "Mr. Drake here might have a speeder that was needing repairs. He would pass by it one day and notice it, and pass again the next day, and it wouldn't be so noticeable, and so on until after a while he would get used to it and not notice it at all and then presently it will tear all to pieces.

"There is one thing in connection with this subject I would like to impress, as to the upkeep of machinery. There are two or three ways to do it. I remember when I was a boy, I was running my first card room. We had some of the old Saco-Pettee compound gears. I don't know whether any of you remember them or not. Some times they would get out of fix, they would run but they wouldn't work right, and I used to have a section hand who would break them up with a monkey wrench so he could get new ones instead of having to fix the old ones. We want to keep up the machinery, but we want to do it as economically as possible. We shouldn't forget that."

"I think we will all agree that the responsibility as to the upkeep of machinery carries with it a proper lay-out of systems of oiling," added P. A. Smith, "systems which will be entirely adequate. If there is anything that calls for supplies it is lack of oiling. It is just this: If we hire an oiler and say, 'Here are 42 speeders, go to it,' we are going to have expensive supply bills, but if we take him to the second hand and see that he is instructed just when the machines should be oiled, the kind of oil to use, and how they should be oiled, your supply bill will be materially reduced and kept at a minimum all of the time. I think this carries out that responsibility. We are responsible to take our second hands and show them exactly how to set everything on the machine, and see that they understand what we tell them. When you change pulleys, if you drive on the pulleys it will cost you money to get them off. We should instruct the men to do the jobs properly. If we trust them, the company is getting the job done on their judgments, not ours. It has been my experience that where we can get after it that way, then we can say, 'I need a new compound for the speeder: I know it was properly oiled and adjusted and set,' and ninety-nine times out of a hundred, they will say, 'Put in the order and you will get it.' I try to see personally that these things are handled in that way."

Economy of Supplies.

W. A. Hammond, of the Pacific Mills, responded first in connection with the topic on "Economy of Supplies." He said he thought this and the question of keeping up the machinery go hand in hand.

As to exercising economy, Mr. Baker expressed the opinion that "an overseer should himself write the orders for all supplies that go into his room, and then he should see that part or piece. He can in this way often find out what caused the part to break or wear out. If a belt has to be replaced, the man should come to the overseer, and it is the overseer's duty to examine that belt. The overseer should examine all supplies and write all orders for supplies."

"That covers a whole lot," declared the chairman. "What do you fellows do—do you have that inspection or do you just write an order without knowing whether the part is worn out or just broken, or what? There is certainly a responsibility there." From the sentiment expressed it seemed that there was unanimous consent with Mr. Baker's method.

Mr. Hamrick said that "thirty or forty years ago when I was overseer of carding at Pacolet, we didn't have any supply room. The supplies were kept in each department, in what we called a supply cupboard. I venture to say that there have been times when for a 26,000-spindle mill, at that time, more supplies were carried than I have for over 200,000 spindles today. The overseer didn't know when the section man went to the supply cabinet, or what he got.

"The up-to-date way is to have your supply rooms and have somebody in charge of them, and let the overseer or somebody write orders for supplies. A great many of the mills are doing it in that way. I would just like to ask how many of the mills represented here today do not have this kind of a supply room." Only two men indicated their plants did not. "I am assuming, then," said Mr. Hamrick, "that all of the others have modern methods for keeping their supplies."

In connection with the matter of card room supplies, David Clark, of Charlotte, said he had been interested recently in the subject of welding, having had it explained that by selecting the proper equipment and securing experienced men, mills could save many dollars by welding broken parts on all kinds of machinery in the plant.

"There are many angles to this supply question," said Mr. Briggman. "I would like to say that I do not think the mill presidents and owners should be so strict as some of them are about ordering or buying supplies, just what it takes to keep the mill running. Suppose you just have enough supplies in stock to keep the machinery going and you have a gear or some part of a machine to break, and you need the production on that machine; suppose some part you cannot fix breaks—which is cheaper, to keep two or three parts in stock or to let that machine stop?"

Mr. Baker pointed out that if an overseer will examine his supplies he can learn the frequency with which different parts wear and he can cut down on those he doesn't need so often and increase the amounts of those which require replacement more frequently.

Quality of Production.

The discussion as to the overseer's responsibility in producing quality production was the most extended of the session, and concluded the morning meeting. The chairman had difficulty getting over the exact application of responsibility here, and when it was explained that the discussion desired was as to what the overseer could do toward improving and holding good quality, P. A. Smith began:

"To start with, he has a certain cotton standard. He should watch that very closely and if the cotton man delivers cotton below quality, he sees it and pulls that bale out and doesn't run it. Then he opens it up and he is re-

sponsible to see that the bagging is properly collected and the ties and buckles disposed of in the proper way. Then he should see that the beaters and cages and screens in the cleaners are properly adjusted, cleaned and oiled and not throwing away any good cotton.

"Then in the breaker he sees that the beaters are properly adjusted so he will have good and even lap. He has established just what variation he can stand, and each lap is checked to this, and if it is too light or too heavy, it is put back. As it comes to the finisher, he does the same thing, and when he sets, say 45 pounds for his lap weight, he checks up to see that it weighs that, and in addition, that it weighs 13 or 14 ounces per yard, yard for yard, as nearly as it is possible for his machines to make it.

"Then when it goes to the cards, he doesn't allow them to tear off a whole lot or let the cans run over and get the sliver dirty. When he strips he has a system of letting the card run for two, three or seven minutes, until the sliver gets back to the proper weight, and then he is responsible to see that they are properly pieced up.

"On the drawing he is responsible to see that the rolls are properly set. On the slubber he must be sure the bobbin tension is right, the rolls right, and follows it right there all the way through. He can show his responsibility by digging into these things, so that when the spinner gets it it is going to spin good; not just to make the speeders run good, but so it will spin good."

Complimenting Mr. Smith's discussion, the chairman brought out that "he hasn't mentioned a thing that doesn't affect production, and he hasn't named an item that doesn't touch on economical operation."

O. H. Goodman, of the Loray Mill, was asked to discuss this, and he brought out some further interesting thoughts. "Mr. Smith has outlined the situation from the opener room to the speeders, and he has given us his ideas as to how the things should be done, and there are several things which must be applied along the lines he has said. One of them is oiling. We must have the right kind of oil. For quality's sake we cannot put too much oil, especially where we have beater boxes without ball bearings, or we will have black and greasy laps that will stretch out from one process to the other and in the speeder room we will have a mile of it.

"The same thing applies on the cards. If you have the wrong kind of oil in the comb boxes it will splash out. On the drawing you have metallic rolls, and if they fill up we get hard slugs, or if the journals run dry we will have cut and lumpy work. On the slubber, if they are not properly oiled—once every three months on day and night operation is my schedule—we will have bad work.

"The most important thing I find to get quality, and quantity, is to have what we call an even doff, an equal amount on the bobbins, so when the creel hand creels she finishes a whole frame at a time, and doesn't break out half of it. In addition to that, when you break out the roving you make the piecings twice or a third more.

"Cleanliness is essential in securing quality. For years I have made a specialty of not cleaning anything in operation. All of my cleaning is done while the machines are standing, and I find we get better results. We clean our rolls every day; we wipe the guides every time we doff and pick the clearer slats every time after doffing."

J. P. Huskey was the next speaker. "I am not a carder, I'm a weaver, but I have to deal with all of these black oil and gouts and hard ends and knots that came from these carders and spinners," he said. "My responsibility in the weave room is to try as best I can to stay in touch with the spinner and carder in regard to these things and bring them to their attention, and cooperate with them in trying to keep all of these things down. Anybody who knows anything about cloth knows that a speck of black oil will ruin a piece of cloth, and a gout or a hard end or knot will make a bad place, and if you do not have a trained set of weavers, some cloth will get through that the cloth room man will check you up on, and if you are not careful the superintendent will have you up. I try to do everything I can to check all of this stuff that comes from the carder and spinner and do away with all oil and anything that will give us imperfect cloth."

W. F. Davis pointed out that it is the carder's job to make the best roving he can for the spinner, so the spinner can give the weaver the best possible yarn in order to let him weave the best possible cloth.

Mr. Crocker declared at this point that it seemed that only recently has the carder been recognizing his position between the devil and the deep blue sea, as he expressed it. He explained that the weaver can, and does, go back on the spinner, and the spinner can, and does, pass the buck to the carder, but that individual has to take all of the blame with no one ahead of him to lay it onto.

J. E. Robinson, carding foreman, Wateree Division, Kendall Mills, Inc., Camden, S. C., next discussed the overseer's responsibility with reference to quality. "Our system of watching our production is to start out in our opening room," he said, "and follow the work through daily. We grade our cotton and see that we are getting the proper raw material. We see that the re-workable waste is being properly mixed in. When the cotton reaches the picker room, we see that we are getting a good lap, that our cone belts are set to run in the center of the cone to take care of any unevenness, and we correct our lap weights to moisture, and then when we reach the cards, we see that they are sharp and set, with good emery on the rolls. Then when we take it to the drawing, we creel a machine at a time. There will be some stop motions that will not work, and in nearly every case you will have a singling, so we believe that by creeling a machine at a time, we get much better running work. At the drawing frames, we try to watch the speeds and see that the rolls are properly set and that the trumpets are of the correct size and not uneven, that the flutes are all clean and kept clean; if anything gets in the flutes there will be unevenness. We believe the drawing frame is a very important operation, but feel it is grossly neglected.

"When we get to the slubber: is the tension correct, and the lay? We follow the work on through, and on the fine frames, we must be careful with the tension, that the end is wrapped three times around the finger, etc., so the spinner can get good roving. All spinners know that a hard end will not go through the spinning rolls. It will break down and in addition you ruin the rolls in the spinning room, so you want to avoid making hard ends. You want to know that the twist is right, not too much, but enough. You want a good roving so it will not break back in the creels.

"Cleanliness is an important item. If a machine is kept clean and properly oiled you will get good work. If it is

neglected you will get a poor quality of work from that machine.

"This has been my experience as a carder, while I was also a spinner, and have watched the roving from the carding to the spinning closely. I believe if the carder and spinner could be associated together so that they could discuss any problems, things would work out splendidly. I do not believe in passing the buck, but getting so close together that they will work out anything that will affect the work."

"We were speaking about the proper oiling of machinery," said Mr. Briggman. "I would like to mention that numbers of us give it just a little bit too much oil and make black work. We have black specks come up in the cloth, and we have had long black threads show up in the warp. I think that was due to improper oiling. Somebody put 50 drops where 2 were needed, and it ran out on the floor and this bobbin got into it."

W. T. Smith referred back to Mr. Crocker's statement about the lonesome lot of the carder, pointing out that it is possible for him to "blame it on the cotton."

Mr. Smith added that frequently "we have all been so pushed for production that we have forgotten quality and cleanliness of the work on trying to get the quantity. Cleanliness influences good running work to a large extent. You can take any process, and if you do not keep it clean, it will be full of slugs and gouts, and we must keep the work clean in order to keep it good. Cleanliness affects the attitude of the people working in the mill. Any of us would rather work in a clean place. We should keep our windows, walls, etc., as well as the machinery, clean. It is our duty to watch these things and see that we keep the whole room clean so we will have more contented help."

Responsibility as to Cost.

G. S. Jones, overseer of carding, Sibley Mfg. Co., Augusta, Ga., discussed the matter of cost responsibility briefly, declaring that to watch costs the overseer should write out and give personal attention to every order for supplies going into his department, as had been previously discussed.

The meeting at this point was adjourned for luncheon, which was served in the hotel rathskellar, where some boys from the University of South Carolina entertained with vocal and instrumental selections which were pleasing.

The Afternoon Session.

Following the luncheon, the University boys rendered further selections in the meeting hall, and there were several announcements before the discussion was resumed. Secretary J. M. Gregg made some statements with reference to the forthcoming meetings of the organization, and on motion of J. N. Alexander, a committee will be appointed to cooperate with the state textile school at Clemson College in the improvement of the facilities there. The mills were urged to lend their assistance and to avail themselves of the cooperation and aid offered by the school, under the direction of Horace H. Willis, in the matter of analyzing and testing materials and fabrics and yarns.

The Overseer's Responsibilities to His Employees.

The chairman, in beginning the discussion for the afternoon, took up those responsibilities of the overseer to his employees which had been suggested at the beginning of the meeting. Instead of taking these in the order in which they were listed, special topics were selected, and the first chosen for discussion was

Promoting the Worthy.

J. N. Alexander, superintendent of the Courtenay Mfg. Co., at Newry, S. C., who suggested this responsibility, was the first to discuss it. "The thing that prompted me to suggest this subject was an observation that I had in the early part of last year," he said. He then told of an experience at that time of going into a mill where they were placing machinery which had been in operation for a long time in the North and had been removed to the South. He said he couldn't understand how anybody could ever let machinery get in that condition, or how anybody could operate it in that condition after it was set up. On the looms, he said, the saddles couldn't be turned with a Stilson wrench. Instead of commenting at the time, he said he decided to wait developments; to watch the boys who were installing the machinery, "to see if they were red-blooded, and to see if the men who deserved promotion got it." In less than a year, he said, "I returned to the mill and that old machinery was going along just like new, and I compared the difference. All of those fellows in that mill were red-blooded Americans, and I said I believed I had solved the problem. I believe that the men in that mill were promoted and were worthy of promotion.

"The section men, as you know, really run the mill today; the better trained they are the better men they make. First we start with the boy, if he is worthy of promotion. Those boys put that machinery into complete running order and producing first grade goods. I could see the difference in the men who had run the machinery and the men who were running it. The other fellows were looking for pay-day and Saturday, and the men running it today are looking for something better, and demand pay on the results they turn out. I went to the office at this mill and asked the superintendent to let me see the reports. * * * I made a talk at our Boosters' club after that and I told them I couldn't understand what the head people of the company in Providence would do when they saw those reports and compared with them what the machinery used to do. I couldn't see any answer except mills being built all the way from Greensboro to Greenville along the Southern railroad. They said they are paying sixty cents per cut for the same grade of work they are paying thirty cents down there, and that there isn't much difference in the pay per week. The difference is in having the right kind of men at the right place. With the Southern man who is a redblooded person with any person who is red blooded, anywhere, he believes in giving value received, and these men are giving value received for what they get.

"I'll tell you one thing: I'll tell anybody that whenever it comes to this question of organizing a mill, do not let your second hands and your section men get disinterested in their work. I wouldn't buy any kind of supplies that my overseer didn't want, and if I was him I would advise with the second hand. I would advise with my overseers even if I knew more about the thing than they did. If I gave him a sizing compound, or a belt, or any kind of a supply, and told him to run it, I would be doing just like the people in the other part of the country. Let's train them to know the value of things, and how can they learn things if they are not interested? This thing was on my mind. The overseer ought to watch the boy who is doing work right, and see at the proper time that he is promoted. Any boy who is worthy of promotion can run the job all right, and if he can't he is not worthy."

Morale.

The subject of morale was selected next, and the chairman asked David Clark, editor of the *Southern Textile Bulletin,* Charlotte, N. C., to discuss it. Mr. Clark referred back to the previous topic first.

"The promotion idea is going forward very strongly in the South in recent years," he said. "In 1911, after I started my paper in 1910, our figures showed that fifty per cent of the superintendents in the South changed jobs, and I do not think that there was then over ten per cent of them promotions. The mills always went outside but the thing is different now. There is not a day that some man doesn't come to my office and ask me to help him get a job, and I have to tell them all the same thing. We used to locate men several times a week, but today we rarely have a call for a man. The big thing is the men are being promoted, and another thing is that so many men have filed applications that the mills can fill their own vacancies. It is almost unusual today for a mill to go outside of its own organization to get a man. I think this has come about through the development of the superintendents and overseers in the Southern Textile Association.

"I think the morale in a mill is largely dependent upon the superintendents and overseers. You cannot get efficient work out of people who are not loyal, and who do not think they are treated well. As long as the majority of superintendents and overseers treat their employees honestly and fairly, I do not think we will have any labor union troubles in the South, or other disturbances, because our people have common sense, and when the mills are in bad shape they are willing to share their burdens, but when a mill begins to throw on the people the burdens of overproduction, low wages (as in New England), etc., then we are going to lay ourselves open for troubles in the future. There is practically no unrest in the South, the operatives are satisfied as a rule with the wages they are receiving, and as a rule they are trying to do good work. I think a good deal depends on the overseers and superintendents to keep up their morale and see that the people are fairly treated."

Good Example.

The matter of setting a good example for the help was next brought up. Mr. Baker said, "if an overseer spits on the floor, stumbles over a bobbin or roving or uses a piece of clean cotton, he should expect his help to do the same thing."

Robert Huskey, overseer of carding, Whitney Mfg. Co., Whitney, S. C., said, "in our mill we do not allow any reading by the help. They do allow the overseers to read, but I do not read on the job except the mill papers and then I do not fail to tell the help that I am reading about my job. I think the overseer should stay on the job if he expects the help to do it. I do not think it is the overseer's duty to stand around the store and smoke and not allow the help to do the same thing."

About allowing the people to read and reading one's self, Mr. Touchstone agreed as to not doing the things that you would not allow the others to do. "Another thing," he said: "I think an overseer should be the first or among the first in the room in the morning, and probably the last man to leave the job. I have seen it in a good many places where it is customary for the overseers to wait around until after the bell rings. You never know just what is going to happen in starting up, and if he hangs around he will not know it until he gets to the room later.

"The attitude the overseer has toward the condition of the room is always noticed by the help. If the overseer does something he shouldn't the second hand will follow his example, then the section men and then the help will follow the others. I think it is the overseer's duty, instead of reading papers or jumping on the second hand too much, to look after things himself."

"I agree with Mr. Touchstone in regard to being in the room first, and being the last to leave," said J. A. Jenkins. "The example you set, the rest will follow. If you are dilatory yourself, and slow to pass around, your second hand and section men and later the help will be the same way, but if you are on the job looking after things, you are encouraging each one to do his best."

"One thing hasn't been mentioned yet," said Mr. Crocker. "I say that the first thing that constitutes a good overseer is that he must be an honest, fair, open-minded man, and he must study human nature. He must know how to appeal to the better parts of the help, and in addition to that he must lead a clean life before them, a man who wouldn't do anything immoral. Some years ago I worked for one of the strictest men that South Carolina has produced. He had certain days to do certain things, and I have heard it said that he was as mean as the devil, but he was fair, and honest. If you did something he gave praise for it. He had very little to say to his help except to praise them. There comes a time in our lives when we want encouragement as well as knocking. We could say that an overseer should be a Christian man, pure minded, clean morally, truthful and honest. When you have the confidence of the help you can get results from them.

"I believe an overseer should have as little to say to his help as possible. I do not mean that he should not listen to their complaints, etc., but he should not be a man who would tell dirty jokes. We should sympathize with them in their worries. If they find that we are true friends there is nothing too much for them to do to satisfy our requirements. I think good morale and good example would be for a man to demand nothing that he would not do himself if he were in the same place—in other words, practice the Golden Rule, be honest, fair and square."

Knowing the Help.

The important question of being acquainted with employees was next broached, and the chairman asked S. T. Buchanan, superintendent of the Piedmont Mfg. Co., Piedmont, S. C., to discuss this.

"It is necessary for a man who works help to know them," responded Mr. Buchanan. "It matters not what position he occupies, whether it is overseer or superintendent or anything else. I happen to have several men here who know me, and know it has always been my policy to know my help as best I could, and I have not failed yet to get work out of the employee. You might try to have set rules, but set rules for everybody will not work. If you have two men working for you, you will have to work them exactly opposite, sometimes. I have had people that I did not dare speak to, and others that in a sense I had to cuss out. If you want to make a success in your work, you must get next to them. You must know them for a long time to get next to them. That is what I have always done, and I doubt very much if anybody has had help to stay with them like I have, and I attribute it to that one thing—to knowing the help. If you know them, you know how to treat them. It goes back to the other thing, some

you can speak to, and some you cannot."

"There is an avenue of approach to everybody," agreed the chairman. "There is a way you can reach the finer points of every man, but it cannot be done in the same way with everybody."

"Mr. Crocker said a while ago that you ought not to speak to them," said Mr. Touchstone. "I think that the personal contact between the overseer and the workers is what leads up to a knowledge of the help. I might have had a person working for me for ten years, and if I do not say anything to him I will never know anything about him. I believe it is essential for each person to be spoken to by you. I think you know them by getting in contact with them. It isn't hard to say something to a man when you pass him, and they appreciate it. In many cases you have it to do and in some cases you have too much of it. My experience is that the very best results can be secured under the hardest circumstances by talking with the help, but I am careful who I talk to, and what I say, but I can get the good will of my people by stopping and saying something to them as I go by."

Mr. Crocker explained that what he had reference to was not pleasant conversation, but the matter of telling smutty jokes and discussing religion and politics and similar subjects with the help in a way as to break down the relationship into one of too much familiarity.

W. W. Becknell, superintendent, Arkwright Mills, Arkwright, S. C., brought out the point that in his opinion, "We can turn that around and let the help know us. We ought to treat our help in such a way that they will feel willing to come to us with any trouble. I have seen men who, the help will say, are peculiar and they feel a hesitancy about approaching them. I think we should conduct ourselves in a way they will know us and how to come to us. You take a man who has been around a mill a good while, and he should be able to go up to Henry, John or Will and ask him about things. If they know you, they will know how far to go and know where the stopping place is. And I think we should create an attitude that they will know to do a thing because it is right."

"I believe it is necessary for the people to know you," said Mr. Merchant. "Whenever they know you, and you tell them to do a thing, they know whether you mean it or not. A good overseer doesn't treat anybody any better than he does anybody else."

Treating Everyone Alike.

Equal consideration to all was the next topic. "I think it is a good thing," said Mr. Crolley. "I don't think we should have any pets or picks, we should treat everybody in the same way and give everybody a square deal."

"That is something it takes a real man to do," declared Mr. Henson, "because one will appeal to you when another doesn't and it takes a real man to hand out equal consideration to all of the people. I was walking down the street one day with the boss spinner and superintendent of a mill, and there was a little doffer boy passed by and he said, 'Hello, Mr. So-and-so,' and the overseer said, 'Why, hello, Johnny; how are you?' The superintendent turned to the overseer and said, 'If I were you I wouldn't talk to them that way, because when you want them to do anything you can't do anything with them.' I thought that was mighty little of him."

"It is our duty to humanity to give each one equal consideration," said W. T. Smith. "It makes no difference what personal feeling we may have, it is our duty as humans to give those we like and those we dislike equal consideration. It is mighty hard to measure up to that; it is mighty hard to give a stranger the same consideration as a man that has been working for us for some time, but we should. That is one of the biggest jobs an overseer has got to live up to."

"That should run along the line with knowing the help," said W. O. McElrath. "We find sometimes that depends on the man, because sometimes, as Mr. Buchanan said, about knowing the help, we must handle each one differently."

"The two go close together," said Mr. Huskey. "I think the overseer should know the living conditions of the help, and should know, with the man running cards, something about how he lives at home, and he should take those things into consideration. A family with one at work has a harder time than a family with two or three working, the living is very slim, and I think that should be taken into consideration, when we are thinking about a man to promote, for example, but I think the man ought to have the proper feeling toward the job, and if he didn't, I would not promote him because I do not think it would be right for the company. I think it is right to push forward the man who can do the job and who will be worth something to the company. We should deal with every man according to his ability, his loyalty, and so on. The man who does the best work and has the most loyalty for the company should have the first place in our consideration."

Courtesy.

The part played by courtesy in an overseer's work was next discussed. Mr. Crocker talked of this, outlining several illustrations to prove the importance and value of courtesy in transacting all kinds of business. Sam J. Bishop, overseer of carding, Saxon Mills, Spartanburg, S. C., also discussed it, pointing out that he has a positive rule to speak to his help each morning, with some kind of pleasantry. "It makes everybody feel good," he said. Mr. Connally told of a man in the industry who has 11,000 people working for him, and who always finds time to speak a word with anyone from a scrub-woman to the mayor.

"That word courtesy is the window to a man's character," said P. A. Smith. "Through his actions we determine what is in his mind, and a little courtesy opens the door for a new business, whether it is selling a big cotton mill or whether it be passing a scrubber. It will make friendships and promote loyalty. If a man will practice courtesy, you can not measure the friendships and ties he will make, and when he leaves, people will be sorry he is gone." But, Mr. Smith continued, the real test comes in being courteous under trying circumstances. It is easy to be courteous to make people feel good, he said, but many times we are impatient or otherwise occupied, and it is a strain to be courteous under those circumstances. It is also easy to grant a request, he said, but it is often difficult when we must say "No" to a demand or request, and he said that is where courtesy is put to the hardest test. We must remember that when a man comes to us for something, although it may seem frivolous to us, it is very big in his mind, and we must make him feel that we are directly interested in it, too.

"I have heard a good deal of discussion on the word courtesy," said R. C. Heyward, superintendent of Middlesburg Mills, Batesburg, S. C., "but up until the last speaker

it has been one sided. It is an easy matter to get out with wares to sell and dispose of them, if you come out in the morning with a smile and have in mind making people feel good, but those of us who are in positions of responsibility do not find things going well all of the time. We feel impatient, and it seems, lots of times when we are busy and our people come to us and ask us for things, that they are frivolous. It takes a real man to be courteous at that crucial point. It is hard when you do not feel like it. But we make more enemies and more disturbances among our people by not giving them due consideration when they come to us with their troubles. I think courtesy should be extended and applied more when we are approached by those who need help than to do it for the purpose of making an impression."

"Courtesy should not only extend in regard to talking about the work, but also whenever they speak to us about anything else," commented the chairman. "That is a mighty good way to keep in close touch with your people; let them feel like you are interested in whatever they are interested in."

Mr. Goodman and Mr. Hindman also discussed the importance of courtesy in dealing with the help.

Training of Help.

In talking of the last question brought up at the meeting, that of training help, P. A. Smith declared this was a matter that could be illustrated with a Mutt and Jeff story. Mutt saw Jeff teaching a dog tricks, and asked him how he did it, and Jeff said, "That's easy, all you have to do is know more than the dog."

Discussing the matter with specific reference to training help in the mill, Mr. Touchstone said, "It has always been my policy to spend enough time with a man to question him as to where he has been working, what class of work he has been on, and how he has been doing that work. Then I will explain to him, if our method is different, that we do not do it in just that way, and that in the course of time it will be explained to him fully. I tell him that we want good work, the very best of work, and I tell him that I will be around to see him occasionally. In the meantime the second hand and section man will be around to see him. Then, ordinarily, if he is a frame hand, we talk about the way to piece ends, clean rolls, etc. If he is a card hand, we generally instruct him in our method of cleaning cards, etc. Then we do not stop at that, but go back occasionally, and if he is not doing it correctly, we make it a point to tell him just how to do it, and explain it again; sometimes we have to explain again and again. I find usually the fellow who is the hardest to understand, if you keep him there a little while and are patient with him, will make you the best hand."

"Does anyone have a regular instructor for their help?" asked the chairman.

Mr. Crolley said he does not have as many to teach as formerly. His method is to get a permit, if that is necessary, and then he turns them over to the overseer who places him, if in the spinning room, with the best spinner he has; in the card room he usually starts a green man on a light job and gradually works him up, and uses the same method in the weave room. In response to a question from Mr. Corn, as to whether he uses a special spinner for training, Mr. Crolley said, "We pick out the best spinner we have and teach her how to instruct the learners."

This concluded the discussion, and the meeting was adjourned.

Textolite Loom Picker.

A new type of picker for drop box looms, made of textolite, has been developed by the General Electric Company and will be marketed by the E. H. Jacobs Manufacturing Company, of Danielson, Conn.

Textolite, of which the picker is constructed, is a development of General Electric engineers and research laboratories. Its base is specially woven, 15-ounce army duck, which is combined with a synthetic resin. The fabric is so interwoven and interlocked that its strength is uniform in every direction, it is pointed out, and under high degrees of heat and pressure the material is processed in steel molds where as a result of fusion and chemical change, the synthetic resin binder acts to hold the fabric under greater compression.

The new type of picker, it is explained, can be used on all looms now using rawhide pickers. Among its features claimed are that the spindle hole remains round, the pick hole deepens slowly, and the stick hole does not wear or deform appreciably. It is ready for immediate application, and, according to the engineers, is unaffected by atmospheric conditions, oil, moisture, etc., besides having a smooth and rounded surface. The spindle hole is closed on the stick hole side, which, it is pointed out, gives better bearing on the spindle rod and eliminates one point where oil or waste may collect.

This picker is manufactured at the G-E Company's Lynn, Mass., works, and will be sold exclusively by the E. H. Jacobs Mfg. Co., with offices at Danielson, Conn., and Charlotte, N. C. The British-Thomson-Houston Co., of England, and the Compagnie Francaise Thomson-Houston Co., of France, associated with the General Electric Company, have also appointed the Jacobs company as exclusive distributors of the textolite products in the textile industry.

The E. H. Jacobs Mfg. Company have been manufacturers of canvas lug straps for sixty years. The company invented the Jacobs Verybest lug strap used exclusively on the latest Crompton & Knowles worsted loom, which, it is announced, has been named the Verybest worsted loom. The company handles an extensive line of textile loom supplies, and it is announced that the addition of the textolite picker provides a complete line of loom pickers for all kinds of weaving equipment.

Railroad Transportation

BY LUTHER H. HODGES AND HARRIET L. HERRING.

The article below is one of a series which has to do with the fundamentals of business, or, more properly known as Industrial Economics. These articles are being published from month to month. Each one is a unit in itself, although forming an integral part of the entire series.

Practical mill men like practical material and these articles are designed to meet the needs of textile operating executives who are interested in knowing more about the laws governing business and industry. The entire series has already been used by a large cotton mill organization in the South in its educational work, and this organization found the material to be very practical and effective.

Each article lends itself to discussion by groups of mill men, as well as being helpful and interesting reading. Naturally the articles are brief and in attempting to cover this large field, only the most important points have been considered.

The history of economic progress of civilization has been in many respects a history of modes of communication. Water transportation in boats propelled by means of oars and in sailing vessels developed centuries before land transportation improved much. Therefore, we see the ragged coasts of Europe where every country had free access to water developed trading and travel early. Wherever large stretches of land had to be spanned by pack horse or wagon trail, people knew little of their neighbors and used less of their products. Only those articles could be transported that were of great value in proportion to their bulk and usually only if they were rare in the country to which they were taken.

If methods of communication and the transport of commodities had not been improved, we should not have seen such rapid development of the United States. Indeed, it is quite believable that without railroads to bind the sections together by trade, making possible the development of natural resources, specialization and sectional interdependence, this vast stretch of land could never have become a unified nation.

Early Transportation in United States.

In colonial days and extending two decades into our national existence the trade of the United States was along the seaboard and faced the ocean. With the settlement of the valleys of the Mississippi river and the Great Lakes, some products such as furs, tobacco and cotton were valuable enough to bear the cost of transportation along the natural water courses of the region to outlets and markets in the East and Europe.

The application of steam to water transportation cheapened and quickened trade and created a demand for waterways that nature had not provided. From 1825-1850 we have the era of canal building to connect and feed natural waterways as well as opening up the interior country with water outlets.

Important from the point of view of travel were the great turnpike systems connecting the more populous centers. It is worthy of note that until the advent of railroads, passenger and mail transportation were separate from that of commodities.

The Beginning of Railroads.

The steam engine was applied to land transportation with the perfecting of the locomotive engine in 1828. The first railroad in the world was from Charleston 136 miles inland to Hamburg, built in 1830. From then till about 1850 a few short roads were built in the eastern part of the country, and like the canals, were at first built to supplement natural waterways and other canals. But they soon came in competition with canals and roused considerable opposition. But the railroad quickly proved its superiority. Before 1850 there were only about 8,000 miles of railroad built in the United States. Between 1850 and 1860, 22,000 miles were constructed and the amount quickened each year, till 1887, when 13,000 miles were laid in that one year. In 1922 we had 260,000 miles in operation.

Governmental Aid.

The policy of governmental aid had been adopted in the canal building period, because of the demand of the interior for internal improvements. About 1850 this policy began to be applied to railroads. The federal government gave land grants. State governments aided by subscribing to stock. Local governments—cities, towns and counties—subscribed to stock or granted subsidies to get a road. While these latter aids were very important in securing roads in the settled portions of the country, the federal land grants were the more spectacular in themselves and in their results.

One of the earlier large grants was to the Illinois Central Railroad of 2½ million acres of land. The railroad was given alternate sections (1 square mile = a section) on each side of the proposed course of the road, the government retaining the other sections. The railroad could then sell its land to settlers as fast as or faster than the road progressed and thus secure money to continue building. The government was also selling its sections to settlers, so that the line of population grew along the road, furnishing products to be shipped and wanting commodities from other sections, thus giving work to the new road. In many cases the roads retained valuable tracts, ones with special resources or in strategic positions for which they secured high prices when the country had built up.

In return for these land grants the government required contracts to carry mails, troops and government freight at reduced rates, and to pay special taxes. These have formed permanent charges on the roads and if all their payments were added up they have long since paid the amount for which the government was selling their lands at that time. The Illinois Central could have bought its 2½ million acres for 3¼ million dollars. By 1915 this road has made a total payment of over 21 millions, in services mentioned.

Criticism of Land Grants.

These vast grants of land have been much criticised. The government was accused of throwing away its birthright in reckless gifts to private corporations. When we consider the tremendous amount of land given to all the transcontinental roads and the mineral, agricultural, forest and water-power resources, it does seem that the craze for railroads which struck the country just after the Civil War cost very dearly. On the other hand, the railroads were essential to the settlement of the country, especially all that part west of the Mississippi river and to filling in much on this side. The roads could not have been built without some sort of aid. Both the government and

the roads were most anxious to get their unoccupied lands in the hands of real settlers and the surest way was by providing transportation. We must not forget that the present values of those lands is chiefly because they are occupied by settlers and served by roads.

Consolidation of Short Lines.

The early use of railroads was similar to the toll roads and canals—the shipper had his own cars and paid a "common carrier" who ran the locomotives to transfer them, the latter paying the railroad company for the use of the road. This soon became so inconvenient that the roads commenced doing the entire job of carrying, furnishing the cars also. The next step was the consolidation of the end-to-end lines. In the beginning, the distance from Albany to Buffalo was in the hands of 10 companies. The waste and delays and inconvenience of this system grew with the multiplication of roads. The consolidating movement, once started, developed so fast that it threatened to go too far for the good of the public. The 210 independent roads of 1883 had been consolidated into less than 50 by 1907. In 1912, 60 per cent of the mileage was controlled by 5 interests. These combinations took place in many instances only after rate wars, broken "gentleman's agreements," and financial battles between powerful railroad leaders. The stories of these struggles for control, centering around the activities of the Goulds, Vanderbilts and later of Harriman, have their romantic as well as their sordid side. After long quiescence in these lines, we are seeing renewed activity in the consolidation of the "Nickel Plate" by the Van Sweringen Brothers.

Economic Characteristics of Railroads.

Mr. Roberts cites two main economic characteristics of railroads; namely, enormous size and cost of the plant and the fact that it is conducted to a large degree on the principle of "joint cost." To these, we might add two others; namely, its monopolistic nature, and "quasi-public character."

Railroad construction and equipment require a vast outlay before any freight can move. In most branches of manufacturing it is expected that the capital will be turned over in a year. In many cases the gross earnings or turnover is two or three times the capital. In railroads, the annual gross earnings have not averaged over 20 per cent of the capital. All this means that the fixed costs—the overhead—are very large whether the plant is used or not; and that increased units of traffic do not add proportionately to the cost. Up to the point of capacity each added unit of traffic makes the cost on all units decrease because the large overhead is then spread over a larger number.

Many problems grow out of these characteristics. Because of the fact of reducing costs, roads have been greatly tempted to cut rates to get more customers. They found it profitable to offer reduced rates to the large shipper. They met competition of other roads or water routes by charging lower rates for a through haul to competing points than for sections of their own route where there was no competition. Roads made "agreements to do away with competition." When these broke down they made "pools" whereby they divided traffic, each road diverting all business beyond its predetermined proportion to other roads. When this became hard to enforce, they made pools of income to even up business. Later they formed traffic associations, whereby competing roads agreed to maintain rates. Later, under anti-trust legislation they had to resort to consolidation to prevent competition.

As can be imagined, all these practices have, at various times and places, roused violent public feeling. By their action, the railroads could determine whether one man or one town or one industry should prosper and another be ruined. Because it was hard to fix a really just rate, and because so much depended on it from a public standpoint, railroads have been obliged to submit to a great deal of legislation.

Railroad Regulation.

In their charters and laws passed in the 1870's, many states tried to prescribe rates. Many set up railroad commissions and the state courts were used to control the roads.

The weakness of state regulation was the fact that, whereas its power ended with the border of the state, the road went on. In 1887 the famous Interstate Commerce Act was passed. Its main provisions were: (1) Unreasonable rates were prohibited; (2) Discriminations between persons, places and commodities were made illegal; (3) Fares and rates must be published; (4) The "long and short haul" clause; (5) Pooling was prohibited.

More important than the prohibitions by this law was the establishment of the Interstate Commerce Commission —a body of men who should devote time to the study of the railroad problem. Most of our later laws have had to do with strengthening this commission so that it is now a powerful administrative body. Its findings and rulings have practically the force of law and are upheld by the courts. It can set rates as well as declare them unreasonable. It has made exceptions in the case of rates for long and short hauls; it has even allowed pools in some instances.

The war found the railroads poorly equipped to take care of the enormous burden that the times demanded. Money was needed for extensions, prices were rising, and labor demands were becoming more insistent. At the beginning of the war the railroads themselves set up a War Board to coordinate the roads for the national interest. Many contend that, if left alone, this board would have done the job and have done it more efficiently. On the other hand, many roads were almost bankrupt and earnings had not been such as to attract needed capital. On the financial end, at least, the government control seems to have been necessary.

Accordingly, in March, 1918, the Federal Control Act put the roads in the hands of the government. A rental equal to the net average earnings of the three years, 1914-1917, was to be paid, and the roads to be returned in as good condition as when taken over. Government operation lasted until March, 1920. Mr. McAdoo, as Director-General, wisely left the actual operation in the hands of the railroad men. Many trains were discontinued, troop handling was admirable, and car service greatly improved. Although it did not effect the savings hoped for, it is possible that without such control the railroad system could not have, even so well, met the unprecedented demand upon it. The problem of returning the roads "in as good condition as when taken over" has been the cause of much contention between the roads and the government since the return and it will probably be many years before the accounts are fully closed.

The government lost a billion dollars on its operation of the roads. For a long time the railroads seemed to be

crippled by the experiment. Lately they are showing signs of revival. The Van Sweringens in their consolidation of lines looking toward a new transcontinental system, are showing that the big days of railroading are not over, as some have claimed. In the recent stock exchange activity rails are often among the headliners.

Railroad Status and Its Future.

Because of the size and economic character of this country railroads are a national necessity. They have become just as much a basic industry for us, at least, as agriculture. This fact makes railroads of interest and importance to the entire country. Newer forms of communication such as the telegraph, telephone, bus and motor truck and, perhaps, air travel, are yet a long way from supplanting railroads. In fact, so far they have only supplemented them. Their main problems of the present and immediate future are securing capital for improvements and extensions and a solution of their labor problems.

CURRENT TOPICS

Presidential Campaigns and Business.

"Well, you know what happens in Presidential campaign year," has long been a standard remark of pessimistic import. Like a lot of other platitudinous assumptions, the belief that Presidential campaigns bode badly for business is without basis in fact. If the record of the past proves anything, which in fact it doesn't, it is that politics, even rife political strife, tends to help business in this country.

Such at least is the finding of those economists who have looked into the subject historically. One finds that only twice in the history of the United States have "bad" business conditions in a Presidential campaign year been traceable to politics. These instances occurred in 1808 and 1860. The first was due to international politics, or, rather, war. Attacks by both France and England on American shipping, resulting in President Jefferson's embargo, cut heavily into foreign trade and brought about a serious business depression. Again in 1860, when it seemed that the nation itself was about to go to pieces there was a bad business reaction as a consequence. Another student finds that something similar happened in 1864, when the reelection of Abraham Lincoln seemed for a time to be in doubt and the Confederate and Union armies were deadlocked. But the reaction passed quickly.

Another student holds that only once since the Civil War has a campaign apparently had retarding effect on business. This, he says, was in 1896 when it looked for a while as if Bryan and free silver might win. But business moved upward during the latter part of the Bryan-McKinley fight.

There have been several Presidential campaign years during which business receded, but on the whole a larger proportion of these than of all years appear to have been marked by advancing business conditions. This is true notably of nearly all in which radical movements were prominent, as in 1892 when populism was to the fore and 1924 when La Folletteism was rampant.

"Mere frequency would suggest that the chances are better than two to one that a Presidential election year will be a bullish year," says one economist.

Statistics covering business movements show that the trade and financial tides have been upward during a large majority of Presidential campaign years as wholes.

There is probably a letting up in some quarters just before a campaign, because of the tradition of uncertainty. And there may be some during the heat of campaigning because of deflected energies. Neither is apparently of much effect because astute folk capitalize both by going ahead more energetically.

A factor always potent but now much more powerful than formerly makes positively for good business conditions during a Presidential-campaigning period. This is the ability of government agencies to stimulate business activity. Business conditions have mighty weight in the shaping of election results and it is to the political interests of those in power to see that those conditions are as good as possible at the time. For this and other reasons, it seems that a business reaction is more likely to follow than to accompany a campaign.

But of themselves alone campaigns appear to have practically no effect on business trends. This perhaps is a reason the great body of the people treat Presidential campaigns as larks of the sort that mark football games than as really serious affairs.

Ships and Subtleties.

Members of Congress often wonder why the public insists on laughing at their august involutions in Washington. One reason is that their subtleties are so palpably obvious as to be positively humorous. For instance, note the Jones shipping bill recently passed by the Senate. Section one "reaffirms" a policy declared in the Jones Shipping Act of 1920, now prevailing. That proclaimed policy is one of private ownership of the merchant marine which the act was to promote. But the privately owned part of the merchant marine has floundered in a sea of difficulties while the government-owned part has prospered—at vast public expense. And the act has been used for bringing about this contradictory status. All but section one of the new Jones bill would make government ownership permanent and irrevocable while proclaiming something else. Under the bill's terms it would be almost impossible for the Government to get rid of its shipping—and it would proceed to build at great cost new ships.

The bill was argued for in the Senate on the ground chiefly that the needs of trade demand continuance and expansion of government ownership. Yet every authoritative expression put forth regarding it from trade and commercial circles was opposed to the bill. If any group has the greatest concern with ocean shipping it should be that of the manufacturers of the country, for they shipped

abroad last year nearly $2,000,000,000 worth of goods. Yet at the last meeting of the National Association of Manufacturers John E. Edgerton, its president, who is a manufacturer of textiles said:

> "One of the first things that it (the Government) should be forced to get out of is the shipping business which during the last ten years has cost the taxpayers three billion five hundred and seventy-one million dollars and is operating at a loss of twenty million dollars. The advocates of this infernal scheme to keep the Government in business are agitating a program of shipbuilding requiring a minimum of two hundred million dollars over a period of ten years."

It is that program which the Jones bill approves—for the benefit of foreign trade—while making pretense of allegiance to an absolutely opposing program. It is estimated, even by supporters of the program, that taxpayers are now paying $120,000,000 a year in interest on money borrowed and sunk on government shipping ventures of the last ten years.

The Jones bill may serve a good purpose, however, in awakening as to this subject an interest which may bring about something worthwhile. It is unlikely that the House will accept the bill, and it certainly can't get the approval of the President. Other measures are being considered in Congress but none provides a satisfactory solution of the problem.

A suggestion put forward by private interests may point the way towards a solution. These interests propose to build a group of ships that would be so large, so fast and otherwise so efficient that they should overcome handicaps upon American built and operated vessels. These operators say they can cut the port-to-port time across the Atlantic to four days, and, by using airplanes as auxiliaries, to even three days for passengers and mail desiring the extra speed. They want the Government to underwrite a portion of the risk. While it is necessarily an experiment, the scheme smacks of the boldness which once caused United States shipping to lead the world. Construction and operating costs were as much against this country in the days of the clipper ships as they are today but the American clipper dominated the ocean by reason of superior efficiency.

The great obstacle to anything comprehensively helpful for American shipping being done is the large volume of merchant shipping still on the government's hands. The Shipping Board still has about 800 vessels which whet the apetites of localities, sections, groups and individuals which may be favored in the use of these ships at the public expense. These interests naturally are for the continuance of government-ownership whatever the cost to the taxpayers or the ruinous effect on shipping as a whole.

New Invasion of the Pink Boll Worm.

Discovery of pink bollworm infestation of the cotton fields of three counties in western Texas revives an interesting quandary as to the long-view future of cotton growing in the South. This insect, one of the moth family, is rated as the worst of all that prey on cotton. It has been in the cotton fields of Mexico for many years and only the employment of summary measures of quarantine accounts for the fact that its depredations are not already widespread in the South. The bollworm was discovered in eastern Texas and Louisiana in 1917 but in time to keep the infestations within community bounds. Vigorous attack upon it brought about suppression. Similar effort will be made to repel the new invasion.

Whether continuing barriers against this pest will be maintained is an unsettled question. Under similar conditions, the spreading of no other insect has ever been permanently prevented. Entomologists urged, back in the 1890s, that intense measures of repulsion be used against the boll weevil. They say that the weevil might have been kept from getting a fixed foothold had summary action been taken in the beginning. Some insects have been restrained after they secured a foothold but practically none has ever been eliminated.

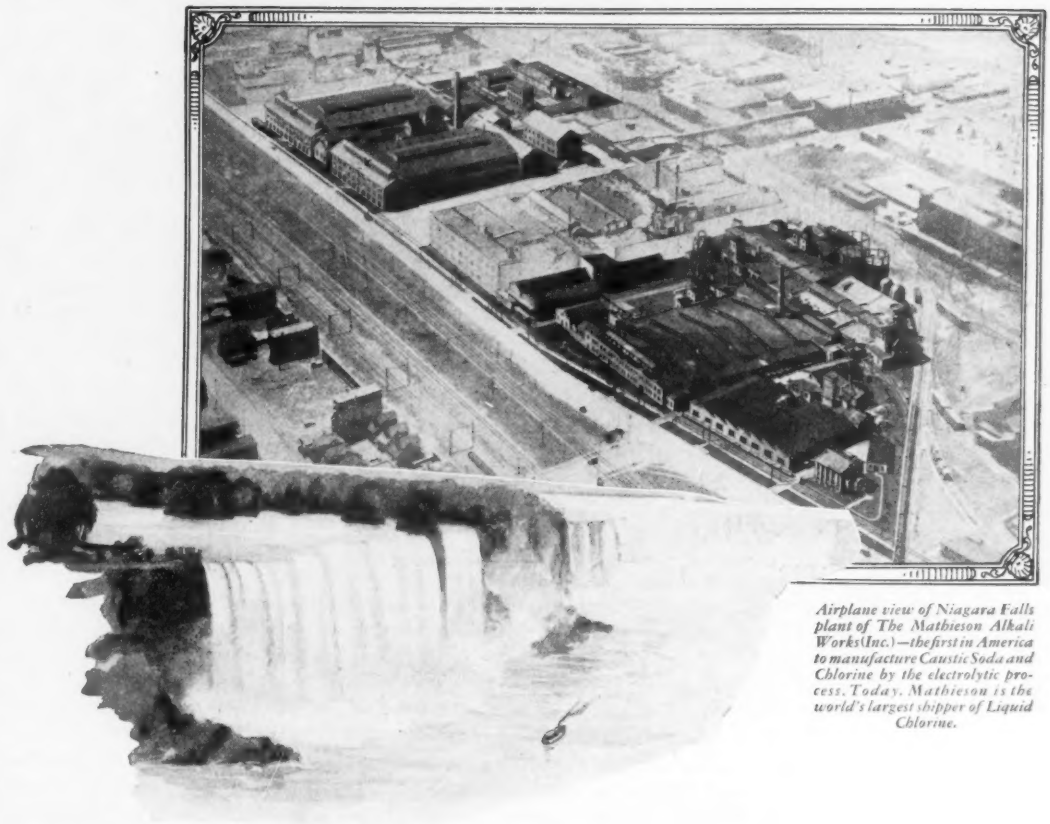
Once established in the cotton-growing South the pink bollworm will be a much more troublesome customer than the weevil. It will lay a heavier toll on cotton. The bollworm is an old resident of India, whence it migrated to Egypt and from Egypt to Mexico. It is now established in most of the world's cotton growing lands outside the United States. It seems to have crossed the Mexican border on a more formidable scale than hitherto.

Federal Tax Reduction Confused.

Unless the taxpayers get busy, very busy, the chances are that there will be no reduction of Federal Government taxes this year. The program of curtailment which seemed so certain of fulfillment when Congress met in December has been in suspense since the beginning of this year. The House of Representatives passed a reduction bill which has been slumbering in a Senate committee. Estimated curtailment proposed by the bill was slightly above what Federal Treasury officials thought to be advisable. The bill was shunted into a pigeonhole by the Senate committee on finance to await returns from the tax-collecting operations of the Treasury for the first quarter of this year. The reason has the appearance of being a pretext only.

Meantime, developments in Congress have been toward expanding appropriations beyond what had been expected. A big naval-building program has been added to other costly enterprises, such as ones having to do with flood control and farm relief, that will entail large new expenditures. A lusty faction in Congress would much rather expend surplus funds than reduce taxes and the public has not been notably insistent that the Federal Government curtail its levies. One reason for this is that the biggest of the proposed cuts applies to the corporation income tax, and it can be made to look as if the corporations rather than millions of stockholders and larger millions of consumers would be the beneficiaries of this.

Corporations are not as eager for the passage of the tax reduction bill framed by the House as should be expected from the fact that they apparently would be the biggest gainers from it. Many corporations would lose more than would be gained by the bill. It carries a cut from 13½ to 11½ per cent. Under the bill each corporation would be taxed regardless of ownership or affiliation status. Heretofore, a corporation with subsidiaries has been permitted to treat the earnings of all as a single entity in calculating income for Federal taxation purposes. With all taxed separately some corporations would have to pay more taxes despite the reduction in rate.



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The bill proposes an even more drastic change in taxing procedure. Earnings prior to 1913 and held since then would be taxable in case of distribution. This is the first time that Congress has undertaken to tax earnings acquired prior to the adoption of the Constitutional amendment allowing the Government to tax incomes.

Tax authorities say that other administrative changes tend to outweigh reductions proposed by the House of Representatives. They say the changes would complicate much more than they would clarify the administrative features of the Federal income tax laws.

The Federal tax problem has been confused, as on prior occasions, by Congress attempting to make administrative reforms and reduce the taxes by means of a single bill.

The situation may be confused further by attempts to add wholly extraneous proposals to the tax bill when it comes up in the Senate. Senator Jones of Washington has announced, for example, that if his shipping bill is rejected by the House he will tack it, as a rider, to the tax act. It is quite probable, also, that efforts will be made to add changes in the tariff duties to the bill.

All this makes the prospect rather gloomy, but it might be changed by the taxpayers getting busy and letting Congress know their wishes, which hardly can be other than for keeping all taxes at the lowest practicable minimum.

A Leader Passes On.

The time has come for Finis to be written for the earthly existence of Fuller Earle Callaway. A true nobleman of industry, a great leader, and a personality most abundantly endowed with human worth has gone from among us. A lingering illness extending over several years had curtailed his active participation in business affairs within comparatively recent times. But it in no sense lessens the poignancy of grief occasioned for thousands by his death; nor diminishes in the slightest the eternal monuments to his integrity, his ability, his honesty, and his wonderful personality, reflected in the institutions for which he builded, and the multitude of people he loved so well, who mourn him with a distinct sense of personal loss.

Fuller Callaway was truly a great man. The record of his greatness lies not alone in the massive enterprises which he so successfully developed, nor entirely in the remarkable organizations he builded up around his businesses, but in his innate love for his fellow-beings, his interest in human welfare, and his utmost honesty and fairness in all his dealings can be found the basis for much of his life's work, which involved for him as well a happiness and a satisfaction which comes to those who serve, and serve well.

He was one of the more prominent and outstanding cotton manufacturers of the world. His career, from its start in a small enterprise upon borrowed capital, to the operation of 23 different successful enterprises, all centering around the section which gave him birth and to which he remained loyal always, represents, in a material way, one of the truly great industrial biographies of all time.

As a man, the memory of none will be held in higher esteem and love and affection among co-workers, associates and friends. His influence, beyond the restrictions of his own interests, has been and will be widespread throughout the world. Endowed with charm of personality, keenness of wit and foresight and judgment, with highly developed characteristics of business honesty and integrity, he occupied an intimate niche in the hearts of those who knew him, and reached a position of eminence in the fields which he selected for activity and service.

The end came unexpectedly, on Sunday morning, February 12th, at his home, "Hills and Dales", in LaGrange, Ga. Funeral services were held on Tuesday, February 14th, with friends from all parts of the country in attendance. He was 57 years of age.

Mr. Callaway's remarkable career is so well known, that a recounting here in detail is unnecessary. Starting in business at 18 years of age, later operating a department store, his keen business methods and honest principles of dealing prospered him, and with his growth, he extended his activities in many directions, all directly affecting the upbuilding of his home section. From banking and ginning, which aided in the development of the section, he entered cotton manufacturing, and in this field achieved prominence without a peer. He builded in Southwest LaGrange a manufacturing community that is known the world over for its features, embodying recreational facilities for the workers that have received for it the classification of an ideal industrial community. His various enterprises have developed and expanded into one of the country's most successful businesses.

The industrial world has lost a leader, and many hundreds have lost a genuine friend. The accompanying photograph, made during the days of his active and extensive association work, will serve to stimulate the recollection of thousands of a real man, a true southern gentleman, whose life and influence most surely have made for his name a place among those who lead all the rest.

What the Southern Mills are Doing.

Continued activity in connection with the erection of a group of ten mills in as many towns in Alabama was one of the features in last month's news among southern mills. Formal organization of the Alabama Mills Company, to form and operate these plants, was effected, with a capitalization of $7,200,000. Robert & Company, Atlanta, engineers, and Caldwell & Co., Nashville, Tenn., bankers, are active in the furtherance of the plans.

Another item of general interest was the activity with reference to the securing of options on several scores of southern yarn mills by Flint & Company, New York City, of which J. Henry Smith has just been made president, with a view to a consolidation of a large number of mills under one operating head. A corps of workers in the office of Robert & Company, Atlanta, engaged as engineers, have

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practically completed the appraisal work on about 175 mills. A number of definite options on some southern plants has been secured, but no actual transactions or sales have been effected to the present.

California Cotton Mills Company, operating two plants at Selma, Ala., and one at Uniontown, Ala., plan to increase the production of their seine and hose twine department by the installation of 20,000 additional spindles and complementary machinery. This department, started at the Uniontown plant about a year ago, has been very successful. In addition to this expansion, the company has organized a subsidiary corporation which has acquired two eastern companies operating five large wadding and batting plants. The new company is known as the National Automobile Fiber Company. The California Cotton Mills Company has for years held exclusive patents on automobile upholstery wadding and batting and has leased its patents to various companies on a royalty basis. They are now expanding their operations toward direct contact with the manufacturers. The new company is taking over the plants of the Little Falls Fiber Co., of Little Falls, N. Y., and the Brintonall Mfg. Co., of Detroit.

Dwight Manufacturing Co., Alabama City, Ala., have placed contracts for the Universal system of high speed winding and warping to replace spoolers and low speed warpers. The Universal Winding Company will furnish twelve Number 60GF high speed winders and magazine creels for six high speed warpers which will be furnished by the Saco-Lowell Shops. The Dwight Mill also is installing 140 looms in the annex recently built to house tire fabric machinery from the Essex Cotton Mills, Newburyport, Mass. The removal of this equipment will be postponed and the new looms, for manufacturing wider goods, will be installed in the building.

International Shoe Company, St. Louis, Missouri, will erect a mill at Malvern, Ark., to manufacture shoe linings and canvas gloves. The plant will cost between $750,000 and $1,000,000 and will house 12,000 to 15,000 spindles and complementary looms. The company at present purchases materials from eastern mills, and has decided upon the manufacture of these products. Probable development will include the production of shoe lace braid and heavy thread as a part of the Malvern activity.

In Georgia, the Valley Mills, at LaGrange, starting originally as the Valley Waste Mills, and gradually expanding into other lines of manufacture, have been reorganized into five separate corporations, along the following lines: Valway Mills, manufacturers of cotton chenille rugs, becomes Valway Rug Mills, with a capitalization of $500,000. Valley Mills Roanoke Division, Roanoke, Ala., manufacturers of men's and boys' trousers, breeches and shorts, becomes Truline, Inc., with a capitalization of $300,000. Valley Mills Laundry Textile Division, manufacturers of laundry textiles, becomes Rockweave Mills, Inc., with a capital of $500,000. Valley Mills Canvas Products Division becomes the Canvas Products Department of Rockweave Mills. Valley Mills Waste Department becomes Valley Waste Mills, Inc., with a capitalization of $400,000. Valley Mills Industrial Cloth Division, manufacturers of wiping cloths to replace waste and rags, becomes Oakleaf Mills, with a capitalization of $400,000.

Work on the Cornelia Cotton Mills, Cornelia, Ga., is progressing. The mill will be 75 x 125 feet, of concrete mill type construction.

Rayon Converting Company, Salisbury, N. C., has been organized by E. B., T. B., and M. E. Marsh, all of Salisbury. It is understood the company plans a plant for converting cotton and rayon yarns and goods.

Work is moving forward rapidly on the rayon manufacturing plant being erected at Burlington, N. C., by Albert M. Johnson, of Chicago. Mr. Johnson's holdings include 225 acres, which will be enclosed with Anchor Post fence. The main building now being erected will be 295 x 71 feet, with saw-tooth roof. The second unit, will be 295 x 100 feet. The first unit will house the spinning room, it is stated, and will have an output of 2,000 pounds of rayon a week.

A. G. Myers, of Gastonia, N. C., has purchased the interest of Dr. O. G. Falls in the Cora Cotton Mills, Kings Mountain, N. C., and has been elected president and treasurer succeeding Dr. Falls. Walter Dilling was elected vice-president.

Gagner Manufacturing Co., Statesville, N. C., which is moving machinery from Adams, Mass., has been incorporated with a capital of $300,000. The incorporators are H. M. Deaton and S. B. Bristol and others of Statesville, and H. D. Gagner, of Adams, Mass.

In South Carolina, there is much rumor of still more new plants. In the Greenville area, where there already are several new plants going up and nearing completion, report says others will be definitely announced soon. One report refers to the probable erection of a 25,000-spindle mill two miles from Easley, S. C., by A. F. McKissick, and associates, of Greenville. It is understood that machinery for the plant has been purchased in the East by Mr. McKissick. J. E. Sirrine & Company, Greenville, will be the engineers. Another rumor, which persists, is that at Traveler's Rest, S. C., just north of Greenville, where Woodward, Baldwin & Company are erecting a plant to house machinery removed from the Renfrew Manufacturing Co., Adams, Mass., that still another manufacturing plant will be built, and possibly a finishing plant.

Rayon Products Company is the name of a company which will erect a plant at Union, S. C., to manufacture rayon cloth for use in underwear, scarfs, etc. Sidney M. Edelstein & Company are the engineers.

At Abbeville, the Edelstein company will erect a drapery mill, to consist initially of 50 Jacquard looms. The officers of the company consist of the present officers of R. A. Tuttle Co., of New York, and the Lund Textile Company, Fisherville, Mass.

At Gaffney, S. C., a silk mill will be erected by the Edelstein organization. One half of the capital is provided by Sol Stutz, of New York, principal owner of the Hazleton Heights Silk Co., Hazleton, Pa., and W. J. Hadfield, principal owner of the Newburgh Silk Co., Newburgh, N. Y. Gaffney citizens are subscribing the remainder of the capital.

It is reported that 250 new Draper looms, to replace present equipment, will be installed in the Broad River Mills, Blacksburg, S. C.

It is understood that full operations will soon begin in the new plant of the Pioneer Braid Mill, at Laurens, S. C.

Aragon-Baldwin Mills, Chester, S. C., are planning the erection of a new two-story picker room at the Baldwin plant.

Employees of the Blair Mills, Belton, S. C., recently

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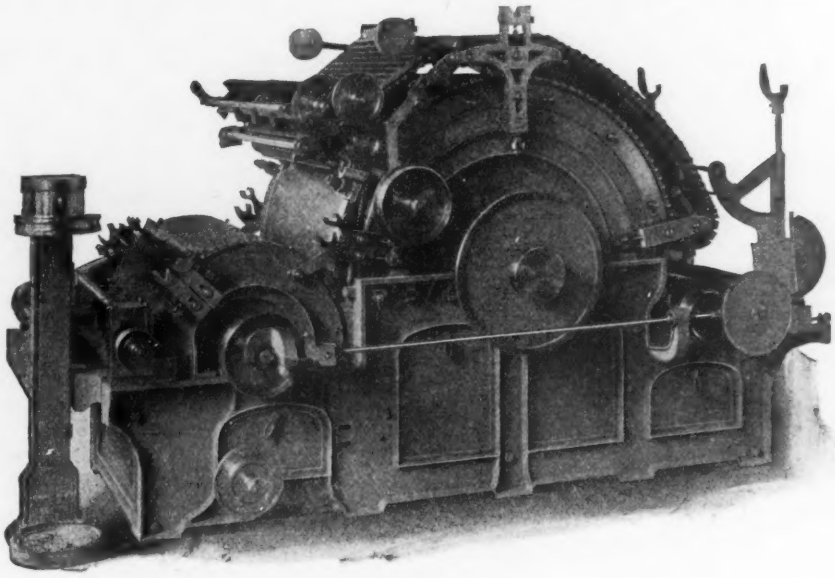

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joined with the executives of the company in acquiring a group life insurance policy through the Prudential Insurance Company of America, through which they will be granted protection for a total amount of $94,000, each of the 86 workers receiving from $1,000 to $2,500 insurance, according to the position held.

The National Yarn & Processing Co., Rossville, Ga., near Chattanooga, Tenn., will enter the rayon bleaching and dyeing field. A new addition is being erected for this purpose. It will be two-story, 100 x 60 feet, and the rayon finishing department is planned to have a capacity of about 15,000 pounds of rayon a week. Commercial dyeing and bleaching of rayon will be carried on, it is stated.

Central Franklin Process Co., Chattanooga, Tenn., recently increased its capitalization from $200,000 to $300,000. It is understood that a rayon finishing plant is being considered by this concern.

A silk mill is to be erected at Murfreesboro, Tenn., by J. Frank & Co., of New York City. Robert & Company, Atlanta, Ga., are the engineers.

Kingsport Silk Mills, Kingsport, Tenn., will erect a silk weaving mill, according to report.

Frances A. Walton is establishing a rayon underwear plant at Martinsville, Va. The plans call for a building constructed of brick, steel and wood, three stories, 64 x 100 feet, with a smaller structure, 40 x 70 feet, to be used for dyeing and finishing processes.

C. J. Hubert and Harry Kaplan head the Martinsville Silk Corporation, of which W. S.Mowbray is local manager. It is understood this company will operate a plant making rayon underwear. Contract has been let for the erection of a 60 x 100 foot, two-story building, of brick and steel construction.

New England Mill Situation.

Production is being curtailed very generally and very sharply among the mills in this section. The agreement among fine goods mills calls for a curtailment of 25 per cent to continue until October and in some mills fully a third of the installed capacity is idle. The wide sheeting mills, such as the Pepperell and Naumkeag are curtailing their output 25 per cent. Print cloth mills are averaging a curtailment of 30 per cent while the gingham production is at a very low ebb. Lack of profitable orders and determination not to stock up goods are the reasons for the reduced output. Among the fancy goods mills, where there is no definite agreement to curtail, looms are being stopped if no orders are received when warps run out.

The volume of curtailment is large and the policy is being followed more generally than any similar movement in the history of the business. The credit for bringing about the united curtailment is given to the Cotton-Textile Institute, but even if that organization were not functioning the experience of the losses sustained in 1926 due to over-production is so fresh in mind that manufacturers would have declined to make goods for stock in a quiet market.

The production in the mills in this section is now so widely varied that it is possible to go through the section and find examples of some mills that are running departments at night to meet orders, while in the same vicinity will be found mills that are virtually idle from lack of new business. Many mills formerly engaged on cotton goods are either running looms on all-rayon or rayon mixtures so that the volume of cotton being used is nothing like former years. For this reason, when estimates of capacity of New England mills actively employed are made, they should be considered from the viewpoint that they may be active but not in making cotton goods . The plain fine cotton goods production is less than it has been for a long time and the stocks of plain combed goods in hand is light.

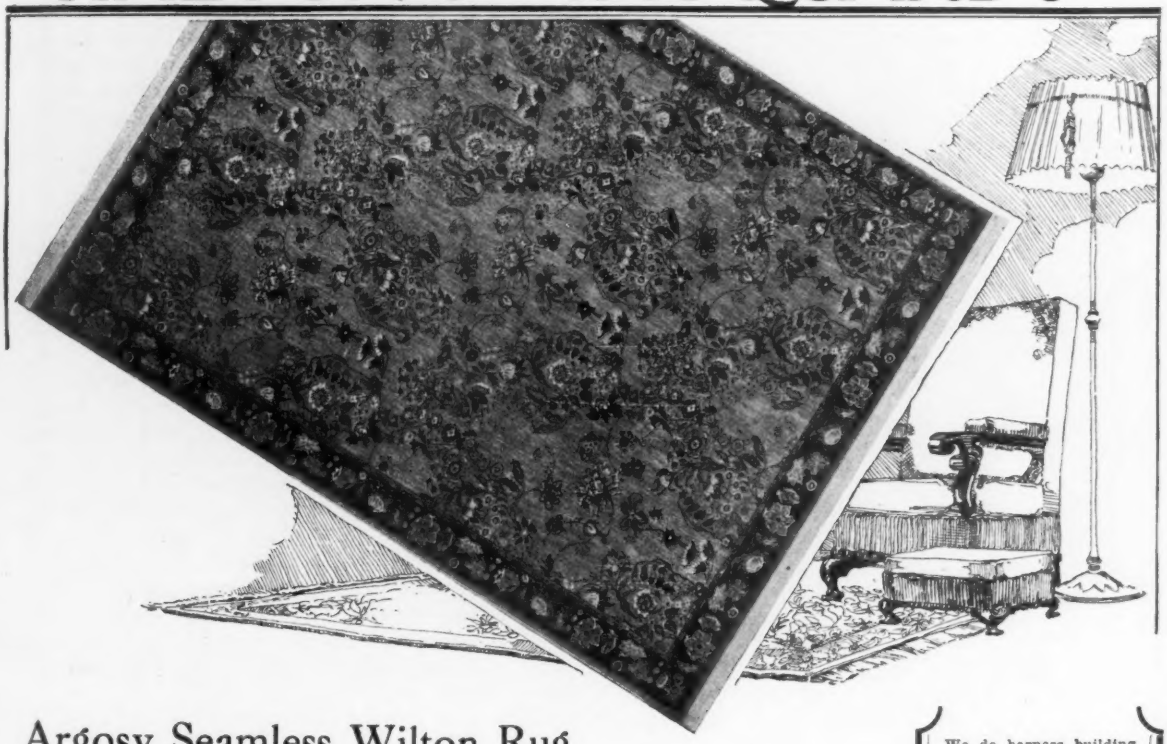
Since the first of February business has been improving slowly and the finishers and job printers have been rushed to make quick deliveries of small lots of goods being put into process hastily. The large corporation printers have continued busy all through the Winter. The bleachers have been operating as low as 50 per cent of capacity on 4-4 goods while some of them were kept busy on sheets, pillow cases, and wide sheetings. The dyers and finishers of all-rayon and mixed rayon products have been busy and they have been adding to their orders throughout the month.

The goods that have been in most active demand have been the printed percales, batistes, dimities, broadcloths, and the medium priced rayon and cotton mixtures in dobby and corded weaves. There has been a larger sale of all-rayon printed fabrics this season and the newly installed facilities of some of the printers are being taxed to their utmost capacity to make the hurried deliveries required. Printed broadcloths in stripes have become very popular and the demand for the cloth has strengthened steadily in the past two weeks.

Some cloths that were primarily designed for piece dyeing such as the two-ply combed plain woven cloth called Pamico by the Pacific Mills are being printed on white grounds to be used for sport coats, beach coats, and ensemble suits. There is also a larger demand this season for the heavier weights and finer counts of print cloths for printing purposes. Buyers throughout the country deferred ordering their wash fabrics so long that it now seems that rush orders will be the rule for the next few weeks. There has been an unexpectedly good call for many of the very sheer rayon and Celanese fabrics both in all-fiber and in cotton mixtures for printing. They appear to be selling well although many of them are being retailed at prices usually commanded by silk goods only. Voiles have not been called for so freely as in recent seasons and only moderate amounts of pongees are being used. Spots in gray goods of this class command from ¼ cent to ½ cent a yard more than contracts delivery on which can begin in the next two to three weeks.

Although many strenuous efforts were made by selling agents to popularize dress ginghams, zephyrs, and similar yarn dyed fancy weaves of box loom constructions, there has been comparatively, little business done. Small checks and all colored goods sell better than any of the fancy weaves, many beautiful samples of which were displayed at the opening of the spring gingham season. Trade on these lines was so slow and buyers were so insistent upon lower prices even when their orders were ridiculously small that selling agents decided to place the fabrics "on memorandum", the price to be named when Fall lines are opened in about six weeks. Even this concession has not stimulated the gingham business.

HALTON'S JACQUARDS



Argosy Seamless Wilton Rug

Made by Hardwick & Magee Company

AGAIN Halton's Jacquards meet the demand of precision and accuracy required by manufacturers for their most delicate patterns and designs.

Hardwick & Magee Company, of Philadelphia, weave all their Argosy Seamless Wilton Rugs with the Halton Jacquard.

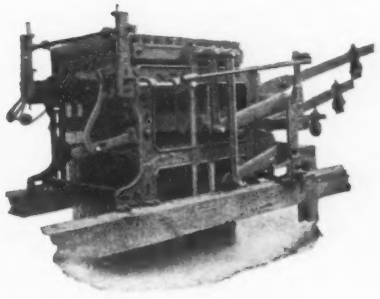
The most famous manufacturers of rugs, upholsteries and designed fabrics, use Halton Jacquards. They know they must have the best.

We do harness building of every description.

We are prepared to furnish at short notice comber-boards, lingoes, mails, etc. Ingrain and Brussel parts.

We do replacing and repairing of Jacquard machines of other makes as well as our own.

Immediate and expert attention our guarantee.



THOMAS HALTON'S SONS

Mascher St. below Oxford
Philadelphia

Selling Agent
H. A. FORBES
P. O. Box 1663, Paterson, N. J.
Telephone Lambert 8592-W

Southern Representative
FRED H. WHITE
304-8 Independence Bldg.
Charlotte, N. C.

"USE A HALTON JACQUARD AND YOU USE THE BEST"

Merchandising methods continued to be discussed constantly among manufacturers and great interest is displayed in new policies being adopted and tried out. The Pacific Mill sent out a notice guaranteeing that Pacific and Truth sheets and pillow cases would wear for three years and if they proved unserviceable in that period the goods would be replaced. The competition in merchandising the trade-marked lines of sheets and pillow cases continues very sharp and this latest move to insure a larger consumption is watched with a great deal of interest. It is not being generally followed.

The curtailment of production in the sheet and pillow division of the Pepperell company indicates the difficulty of merchandising these goods in the face of large production and strenuous merchandising efforts on other lines. To get away from the difficulty of merchandising their products as bleached goods, Converse & Co., who are selling agents for the B. B. & R. Knight mills of Rhode Island, are printing many of these goods in high art designs for dress and general purposes and are reported to be moving all they can print on four machines. A number of mills are working in cooperation with job printers and converters in financing the production of finished lines to be delivered to converters who undertake the merchandising on terms that relieve them from all the obligations of financing the sales.

The fancy cotton blanket mills and the mills making fancy flannels and plain domets have booked about as much business as they care to take at the present time. Nashua lines were ordered promptly as the price is fully protected under special agreement. The buyers of flannels have not operated as freely for Fall as they did a year ago either in the wholesale or in the cutting trade. Most of the wholesalers have ordered about half their normal requirements giving preference to pattern goods and deferring the completion of their business until some time in April.

The action of the cotton market has led buyers of cotton for the mills to place orders moderately. While they are in doubt about the probable course of prices they were also held back by the lack of forward orders in normal volume. Some few mills are comfortably supplied with the staples but as a whole the forward commitments will not carry them much beyond May as an average. It had been expected by many manufacturers a week or two ago that the end of the declining cotton markets had been seen until the new crop began to show above the ground. But at the present time considerable doubt is expressed whether an easing cotton market and some known forced selling of actual cotton at low prices abroad may not bring lower prices than have been prevailing.

Most manufacturers using rayon were very cautious about placing forward orders up to a week or two ago. Market dissatisfaction with sub-count rayon alpacas composed of equal parts of cotton and rayon led some converters and printers to discard the low qualities of chemical fiber mixed goods and that delayed the placing of considerable business that was available last year and the year previous. On the other hand, the fine cotton mills are being offered more business on all-rayon fabrics the demand for which is being stimulated by a national publicity campaign to popularize cloths of that character. Some very beautiful samples of sheer all-rayon and Celanese fabrics are being worked upon for the coming season.

The destructive fire in Fall River that wiped out $12,000,000 worth of business property in the center of the city including four banks, and more than half the offices of cotton and cotton goods brokers added another depressing feature to that larger center. There are still several plants totally idle there and the print cloth output consisting largely of odd constructions is less than 50 per cent capacity.

The wage reductions that became effective in Fall River mills caused no serious labor disturbances. Notices of reductions in other centers are being posted slowly and as many of the mills cannot offer work for more than ¾ths of their employees under present market conditions their managers are not disposed to press for wage reductions at this time.

Machinery from the Appleton Mill in Lowell to the extent of 30,000 spindles and complementary equipment is being moved South to the Appleton plant in South Carolina. The machinery from the Parkhill Mills at Fitchburg, Mass., to the extent of 1,000 looms is being moved to the Amoskeag Plant at Manchester, New Hampshire. It is reported that the machinery in the Everett Mills of Lawrence, Mass., will be removed South to be installed in mills to be built by the Alabama Mills Company. A great deal of this machinery is better than the average equipment in mills much of it having been installed within the past few years and all of it having been kept up in excellent condition.

Much interest is being taken in the forthcoming meeting of the National Association of Cotton Manufacturers which is to be held at Providence, R. I. April 25-26 with headquarters at the Providence-Biltmore Hotel. The centenary of the first patent on ring spinning granted in this county to James Thorp of that state will be celebrated at that time by a session arranged to take place in the old Slater Mill at Pawtucket, R. I. which is being maintained as a textile museum.

Cotton Comment.

BY H. AND B. BEER.

New Orleans, February 11, 1928.

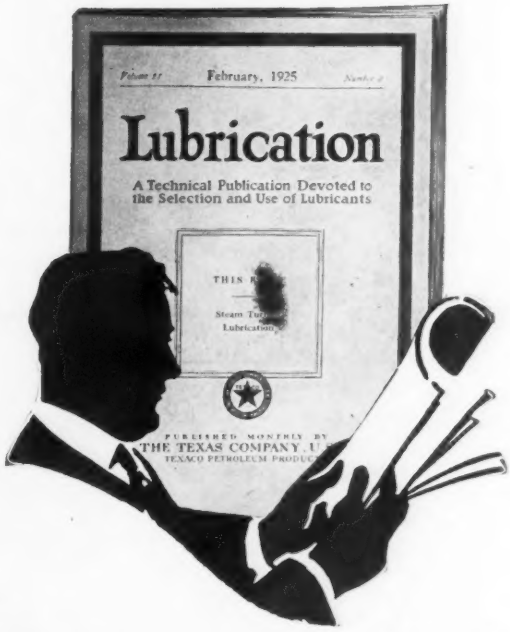
Until of late liquidation, influenced by talk of the probability of a substantial increase in this year's cotton acreage and in the use of fertilizer, and because of the continuance of a slack spot demand, caused the market to decline further to the extent of about two cents, or to new low price levels for the downward movement, which carried values down to about the cost of production.

The low prices attracted trade, investment and speculative buying, and as recent advices from the interior indicate only a slight increase in the acreage and only a moderate increase in the use of fertilizer, values recovered about $5 per bale during the past week.

Contributing to the recent advance was the continuance of dry weather in the drouth area of the Southwest where moisture is needed, especially in western Texas and west Oklahoma to put cotton lands in condition for plowing in preparation for the next crop.

Another sustaining feature, and which is attracting much attention, is the reported spread of the pink boll worm in extreme west Texas where 18 counties are under government observation in an effort to exterminate the worm or try and prevent it from invading other sections of Texas and other states of the cotton belt. Of the 18

"MORE IMPORTANT THAN LUBRICATION IS TO KNOW WHICH LUBRICANT TO USE —AND HOW"



THIS publication has for seven years merited the highest respect and praise among machinery operators and machinery manufacturers, and among Lubricating Engineers in every conceivable industry and profession — in this country and throughout the world.

In Industry's acceptance of this publication, The Texas Company's position in the oil industry, the reputation of its Engineering Department as well as the high quality of TEXACO lubricants have undoubtedly played a part.

However, it is our honest belief (corroborated by hundreds of readers of "Lubrication") that the real reasons for this magazine's popularity are the practical, concise manner in which it covers the application of the science of lubrication, the value and scope of the subjects discussed, and the handy, up-to-the minute Recommendation Chart, covering the material contained in each issue.

This latter feature alone—the list of TEXACO Lubrication Recommendations—has caused many, many lubricating engineers, power plant executives and purchasing agents to accept "Lubrication" as the foremost "lubrication catechism."

To engineers, executives and purchasing agents who desire to keep informed regarding up-to-the-minute Lubrication Recommendations—we shall be glad to send the magazine "Lubrication" (free) every month.

You can never know too much about lubrication, so

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Kindly put my name on your free mailing list to receive the magazine "LUBRICATION" monthly:—

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counties under observation, about 9 of them produce cotton, having ginned all told 162,000 bales in 1926. The pink boll worm is considered more destructive than the dreaded boll weevil, and there is the possibility, in order to exterminate the pest, of prohibiting the growing of cotton in some if not all of the counties in the danger zone this year. Meetings to consider the situation are set for the latter part of this month at several points in western Texas.

The drouth in Texas is reflected in the following comparatives covering rainfall since last October:

TOTAL AVERAGE RAINFALL IN TEXAS.

Inches— Year	1928	1927	1926	normal
January	0.67	1.27	3.11	1.83
Oct. to Jan., 4 months	6.94	10.66	11.96	8.92

Of late there have been scattered light to moderate showers in the dry areas, but some districts had no rain, and general copious rains are needed over the state, especially in the western portion, also in west Oklahoma, to put a good season in the ground for the next cotton crop.

In addition to the drouth in the Southwest and the spread of the destructive pink boll worm in west Texas, farmers have to contend with the destructive boll weevil. The early January hard freeze, it is thought killed many weevil, especially in the northern half of the belt where temperatures were the lowest, near zero at some points. But an unusually large number of weevil are reported to have gone into hibernation for the Winter, and it is possible that many may survive the cold. In fact private advices, even from the northern portions of the belt, tell of live weevil being very much in evidence since the freezing weather. Therefore, much will depend on the number of weevil that will emerge this Spring and on the character of weather to be experienced next Summer.

Meanwhile the government has warned the cotton producer against over-planting this year, calling attention to the disastrous results, due to the decline in prices to below the 12 cents level in 1926, brought about by planting too large an acreage.

According to students of economy, the business outlook for 1928 promises to be as good as it was last year, as farm products are selling at fairly good prices, the masses are well employed at good wages, and the general situation in Europe is gradually improving.

The impression prevails that the worst has been seen in the cotton trade, as stocks are only of normal proportions and much smaller than last year, and while the demand for goods and raw cotton has been disappointing thus far this season, the outlook is more hopeful for the future since buyers cannot remain out of the market indefinitely for their future requirements.

STATISTICS.

	Bales	
	This season	Last season
In sight since August 1st (marketed)	11,034,000	14,959,000
Exports from the U. S. since August 1st.	4,850,000	7,008,000
World spinners takings since August 1st.	9,278,000	10,353,000
Stocks at all U. S. ports	2,274,000	2,879,000
Stocks at 28 counted interior towns	680,000	1,003,000

DISTRIBUTION OF WORLD'S VISIBLE SUPPLY AND INDICATED WORLD'S AVAILABLE OF AMERICAN COTTON EXCLUSIVE OF MILL STOCKS.

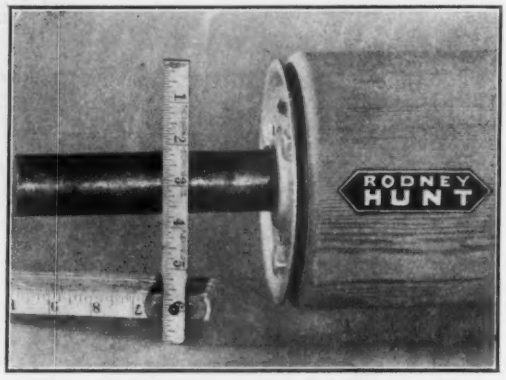
February 10th— Bales—	This year	Last year
In the United States	2,954,000	3,882,000
In Europe and afloat	2,066,000	2,800,000
World's visible supply	5,020,000	6,682,000
Unmarketed, estimated	3,757,000	5,435,000
World's available, indicated	8,777,000	12,117,000

The eagerness with which the trade, investors and speculators bought contracts at the low prices during the past week, causing the market to experience an important recovery, silently testifies to the confidence entertained as to the future of the market.

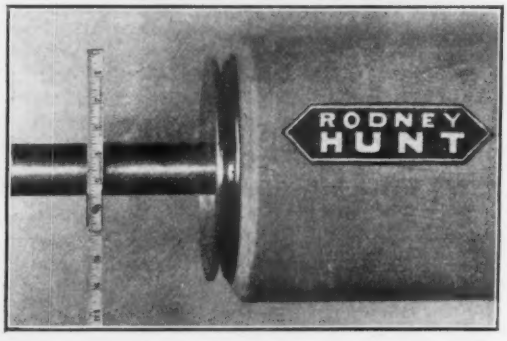
Rodney Hunt Develops Drip Flanges.

In operating washers, dye kettles, or bleaching machines in dyeing and finishing plants, executives are familiar that the end of the roll may well be called a danger zone of trouble. Frequently water, bleach or dye liquor runs over the ends of the rolls to the shaft and into the bearings, where it becomes mixed with oil, resulting in oil stains on the goods.

To aid in the elimination of oil stains from this cause, Rodney Hunt Machine Co., 47 Maple St., Orange, Mass., have developed new drip flanges, which are illustrated in the accompanying photographs. It will be seen that these drip flanges guide the stray water or liquor back into the tub, preventing its running over the end of the roll and



Above, Combination Drip Flanges on Rodney Hunt Shaf-tite wood rolls. Below, Combination Drip Flange and White Seal on Wood Rolls.



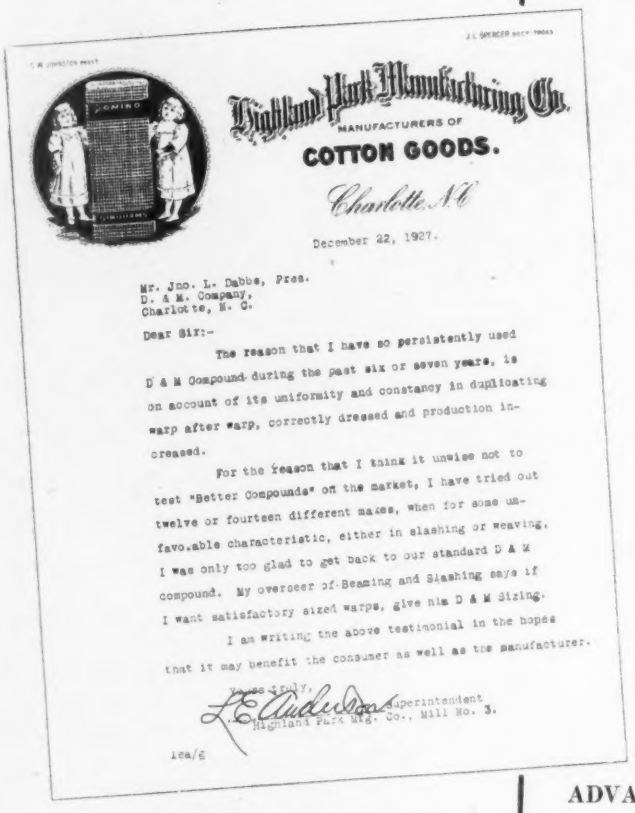
coming into contact with the oil in the bearings. This also prevents thinning of the oil, it is pointed out, and incidentally is an aid in overcoming faulty lubrication. This new development is fully described in the company's publication, "Roll Turnings", Vol. 9, No. 1, a copy of which may be secured by those interested upon application to the company at the address given. The company is furnishing their squeeze or washer rolls with this device. One illustration shows the application of the drip flange and "White Seal" in which the ends are hermetically sealed. The other illustrates the combination of drip flanges on the "Shaf-tite" wood roll made by the company.

Improving the quality of your textiles

The unusual quality of D. & M. Sizing and Finishing Products is attained through the use of carefully selected raw materials and by the employment of the best manufacturing practice.

The use of D. & M. Products in the manufacture of your textiles is assurance that your quality standards can be maintained.

We are prepared to fill your specifications promptly and to give attention to your original problems of manufacture, which makes for excellence of product.



Highland Park Manufacturing Co.
MANUFACTURERS OF
COTTON GOODS.
Charlotte N C

December 22, 1927.

Mr. Jno. L. Dabbs, Pres.
D. & M. Company,
Charlotte, N. C.

Dear Sir:-

The reason that I have so persistently used D & M Compound during the past six or seven years, is on account of its uniformity and constancy in duplicating warp after warp, correctly dressed and production increased.

For the reason that I think it unwise not to test "Better Compounds" on the market, I have tried out twelve or fourteen different makes, when for some unfavorable characteristic, either in slashing or weaving, I was only too glad to get back to our standard D & M compound. My overseer of Beaming and Slashing says if I want satisfactory sized warps, give him D & M Sizing.

I am writing the above testimonial in the hopes that it may benefit the consumer as well as the manufacturer.

Yours truly,
L. E. Anderson, Superintendent,
Highland Park Mfg. Co., Mill No. 3.

lea/g

This letter is only one of many that have come to us giving honest tribute to the D & M Products. During the last seven years the production of D & M Products has steadily increased, which in itself is evidence of their worth.

D & M FINISHING EXTRA

For finishing ginghams, chambray, handkerchiefs, towels, etc. Well adapted for any fine finish.

D & M PRINTING GUM

For warp printing. Furnished in a powder form in order that gum of any consistency can be made.

D & M RAYON FINISH

This is prepared for the finishing of goods that contain Rayon in either warp or filling—or both.

D & M FINISHING PASTE SPECIAL

For finishing coarser cotton goods—cheap ginghams, etc.

ADVANTAGES OF D & M TALLOW

1—Economical. 2—Improves weaving. 3—Saves loom harness. 4—A more satisfactory sizing. 5—Uniform and constant results. 6—Improves quality of cloth. 7—Increases production. These points are based on hundreds of testimonial letters.

THE D. & M. COMPANY, INC.
CHARLOTTE, N. C.

D. & M. *Finishing and Sizing* Products

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

W. C. COBB has retired as superintendent of the Ware Shoals Manufacturing Co., Ware Shoals, S. C., concluding a mill career of 48 years of consecutive service, of which the last 23 years have been spent at Ware Shoals. Winder Gary, for the past six years assistant superintendent at Ware Shoals, has been made superintendent succeeding Mr. Cobb. Mr. Gary is a graduate of the Georgia School of Technology. Mr. Cobb began his mill career as an apprentice weaver at Piedmont, S. C., in 1880, at the age of 17, going to Pelzer a year later as a weaver, where he remained for 17 years. Captain Ellison A. Smyth then put him in charge of the Belton Mill, where he remained as superintendent until 1905, when he started the Ware Shoals development with Ben D. Riegel. He has been an active factor in the tremendous development at Ware Shoals, entering into every phase of activity there. Several times within recent years, in recognition of his service, the company has proferred retirement, which he accepted this year. He is one of the best loved characters in the southern textile industry.

D. C. COLLIER has been elected president of the Southern Manufacturing Company, Athens, Ga., succeeding the late Billups Phinizy. Mr. Collier is from Barnesville, Ga., and until several years ago, was connected, with his father, in the knitted underwear business. C. H. Newton, formerly secretary, was made vice-president, and H. F. Patat was made secretary-treasurer succeeding him.

HAROLD R. TURNER has been made superintendent of the Watts Mills, Laurens, S. C., succeeding E. G. Jessee, resigned. Mr. Turner is a graduate of Clemson College, and has been connected with the Dunean Mills, Greenville, S. C.

HAROLD J. CALLAWAY is in charge of the offices and warehouse of the Callaway Mills, Inc., at Charlotte, N. C.

T. W. TIFT, president of the Piedmont Cotton Mills, Egan, near Atlanta, Ga., has been elected president of the Atlanta Commercial Exchange for the current year.

J. W. NEWTON, president of the Trio Mfg. Co., Forsyth, Ga., died at his home on Sunday, February 14th, following a one-day illness. He was 79 years of age.

C. G. VOSS, formerly superintendent of the China Grove Cotton Mills, China Grove, N. C., has become superintendent of the Bloomfield Mfg. Co., Statesville, N. C.

JOHN W. H. BUCKLEY, well known in the south as a former mill superintendent, who had connection later with the Bureau of Standards, is now operating the Ever Ready Service Station, at 220 Bladensburg Road, N. E., Washington, D. C., where he is glad to see former textile associates driving North. The station is located on the boulevard between Baltimore and Washington.

DONALD M. RYERSON, vice-president and general manager, has been elected chairman of the board of directors of Joseph T. Ryerson & Son, Inc., 16th and Rockwell Sts., Chicago, Ill., succeeding his father, Edward L. Ryerson, Sr., who died on January 19th. Edward L. Ryerson, Jr., vice-president in charge of plant operations and several sales divisions, succeeds his brother, Donald Ryerson, as vice-president and general manager. Everett D. Graff has been elected a vice-president.

T. M. MANLEY, who has been connected with the Morse Chain Company, Ithaca, N. Y., for about 20 years, has been appointed manager of the district including the Mohawk Valley, Northern New York, Vermont, Western Massachusetts and Northeastern Pennsylvania. Mr. Manley's headquarters are at the main office and works of the company in Ithaca.

JOHN E. TOBIN recently resigned as assistant superintendent of the Flint Mills, New Bedford, Mass., became effective the first of the year, superintendent of the Butler Mills, New Bedford Mass. He was formerly superintendent of the Queen City Cotton Co., Burlington, Vermont, for eight years.

ANDREW B. MACY has been made superintendent of Nashawena Mill B. New Bedford, Mass., succeeding Harry H. Burton. Mr. Macy has been cloth department overseer in Mill A. He is a graduate of the New Bedford Textile School and is 34 years of age.

F. J. HAYWOOD, of Concord, N. C., has been elected president of the Bloomfield Mfg. Co., of Statesville, N. C. N. C.

A. B. MCCORMICK, a graduate of the North Carolina State College, who has been superintendent of the County Moore Mills, Hemp, N. C., has become associated with the Yarborough Mills, Durham, N. C., as superintendent and designer.

THOMAS TEMPLE has resigned as superintendent of the Bailey Knitting Mills, Fort Plain, N. Y., to become general superintendent of the Gilbert Knitting Mills, Inc., Little Falls, N. Y.

FORREST B. GARDNER has resigned as manager of the Monticello Cotton Mills, Monticello, Arkansas.

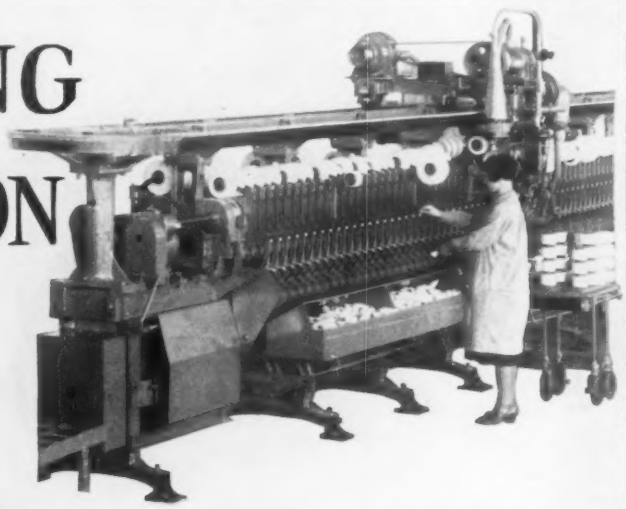
ROY DALLIS, of the Callaway organization at LaGrange, Ga., died there on Thursday, January 19th. He was 55 years of age. Mr. Dallis became associated with the Elm City Cotton Mills when it began operations in 1905 and served as manager for almost twenty years. Several years ago he was made consulting engineer for the Callaway interests. He was vice-president of the Elm City Cotton Mills. LaGrange, and the Manchester Cotton Mills, Manchester, Ga.; a director in the Unity Cotton Mills, Hillside Cotton Mills, and the LaGrange National Bank.

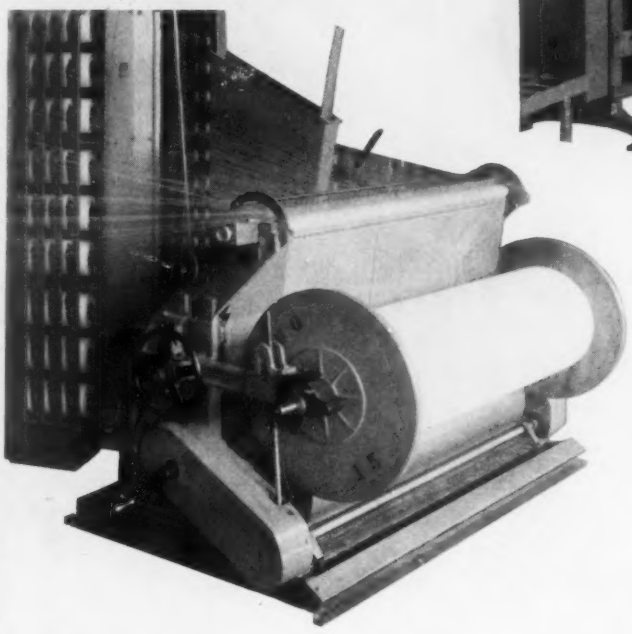
W. T. GARNER has become overseer of weaving at the Inman Mills, Inman, S. C.

EDWIN HOLDEN is superintendent of the new Elizabeth Bartlett Mills, Acworth, Ga. He was formerly located in Philadelphia.

L. J. MESSIMORE has been promoted from overseer of weaving to superintendent of the County Moore Mills, Hemp, N. C. He is a graduate of the textile department of North Carolina State College.

A WINNING COMBINATION





AUTOMATIC SPOOLER
HIGH SPEED WARPER

Spool and warp yarn at 1200 and 500 yards per minute, respectively, and actually improve the quality of the warps. Low and uniform tension and "Every Knot a Weaver's Knot" will automatically increase your production.

On February 1, 1928—61 representative Cotton Mills were using or had on order:

254 Automatic Spoolers
198 High Speed Warpers

This equipment will improve conditions in your mill

BARBER-COLMAN COMPANY

GENERAL OFFICES AND PLANT
ROCKFORD, ILL., U. S. A.

FRAMINGHAM, MASS. GREENVILLE, S. C.

20% Reduction In Seconds

Through the Use of U S "E" EYE AUTOMATICS

This is a report from one superintendent of weaving who recently started using the new U S "E" eye automatic shuttles.

Make changes indicated

Six years of development work along similar principles are behind our "E" eyes. They are new but still not new. They are the fifth in line of a series of easy and positive threading eyes, each one of which has in its turn embodied additional features of value or emphasis on good points. Every detail for improvement suggested by weavers on all classes of filling has been incorporated in the new "E" eye. They will run cotton, wool, worsted, jute, silk, or rayon equally well. It makes no difference whether the yarns are soft spun or hard twisted. Tension can be controlled as in no other eye.

Features that Make for Better Fabric

Easy natural positive threading.

Freedom from mispicks—double picks—cut filling.

Freedom from broken filling on the transfer.

Filling gets down into the delivery eye on the second pick and stays there.

Selling Agents for

APCO-MOSSBERG CORP.

All-Steel Loom Beam Heads
All-Steel Section Beam Heads
All-Steel Adjustable Beam Heads

Can Loom Stops, due to Shuttle Imperfections, be reduced in your mill?

Over ~~12,000~~ 16000 "E" eye automatics are now running. In the short space of ~~three~~ five months, since we put these eyes on the market, over ~~forty~~ fifty mills have unqualifiedly approved and adopted U S "E" eye Automatic Shuttles for all replacements.

Send a sample shuttle showing your size, together with a filled bobbin of the coarsest yarn you are now running, and write, wire, or 'phone for yours today.

U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.

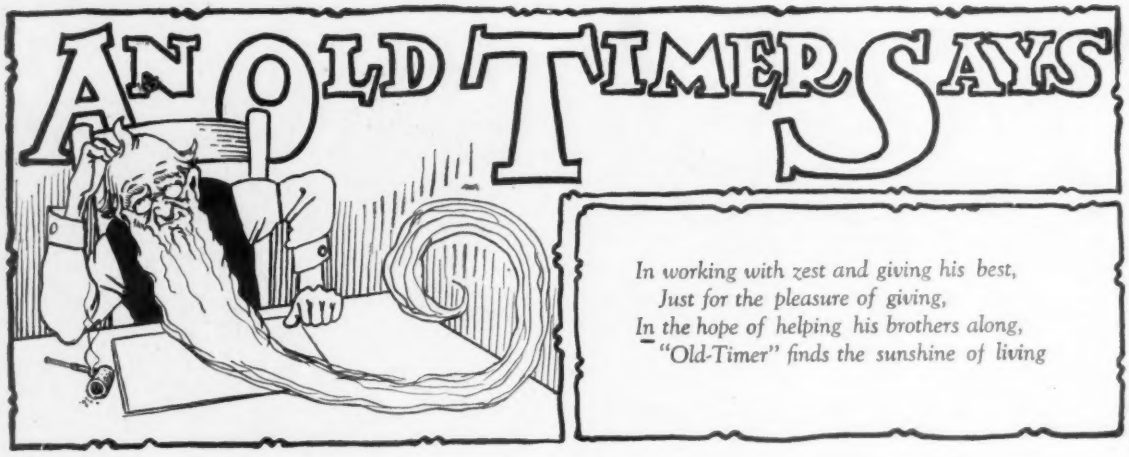
Greenville, S. C.

Branch offices:

HIGH POINT, N. C. **PHILADELPHIA, PA.** **ATLANTA, GA.**

U S Salesmen are Specialists on bobbins, shuttles and spools. Call on U S for real helpful and understanding service.

BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

Sitting at my desk the other night I asked myself these questions:

What makes an overseer?

What makes a successful man in any line?

Does a man get to be an overseer because he has more physical strength than the man he is working with? Is it because he can lift more than the man he is working with? Does a man get to be a successful business man because he is stronger physically than the other man?

Could this be said of a man like E. H. Harriman, who was considered the greatest railroad man the world has ever seen? It could not have been anything like that because Mr. Harriman was a very small man—weighed only about 135 pounds.

I finally came to the conclusion that a successful business man—a successful overseer—a successful preacher—a successful doctor—a successful man in any line, is a man who *Thinks.*

It is the man who *Can Think* that rises above his fellow man. If the average man can *Think* how he can lower his cost—how he can increase his pounds per operative—how he can reduce his supply account—then it is the man who *Thinks* that is the man who beats the other fellow.

Think of a way to make your work run better—

Think of a way to get more speed out of that machine—

Think of a way to keep bobbins off the floor—

Think of a way to lay laps on cards better—

Think of a way to work up more interest among your operatives in competitive production—

What have you done in the last few days in the way of *Thinking?* Have you gone along in your regular routine of work, merely coming to the mill in the morning, putting on your lights, starting up your humidifiers, starting your motors, getting your help placed, then going through the regular routine of the day's work?

Or have you gotten off to yourself and tried to *Think* of some way you could improve your job—or some way that you could do things in your room a different way, a better way?

The attitude some overseers and superintendents take toward their work reminds me of the story I heard about a mule one darky sold another.

Sam was a pretty slick horse trader. Reuben was a good old darkey who owned a little farm. Sam sold Reuben a mule. A few Saturday afternoons later, Sam and Reuben met up in town and the following conversation ensued:

"Sam, dat mule you sold me must be blind."

"Why for you think dat mule am blind, Reuben?"

"Case when I took him home, turned him in de pasture and slap him with de bridle, dat mule he run right plum into a tree."

Sam had to think pretty fast to know what to say—

"Shucks Reuben, dat mule aint blind; he jus' naturally don't give a dam."

I say some overseers and superintendents seem to take that attitude toward their work.

How many men have you in your employ who *Think?* Honest now, have you ever talked to one of your men along that line?

What is an overseer for, anyway? Just to watch over his room; to tell the people not to do this and not to do that?

Why not show them things they *should* do to make more money—to increase their production—instead of always telling them things they should *not* do?

We are all human beings, and I do not known of anything that a human being appreciates more than encouragement. Some men seem to get the idea that it is their job to always find fault.

I do not see any operatives helping each other like they used to do in the mills several years ago. *Yes,* I know what you will say in answer to that, operatives have so many more machines than they formerly did they cannot help each other.

In Rebuttal to that statement, I will say that as I go through the mill I find some operatives who are caught up with their work—while probably an operative beside them is badly behind.

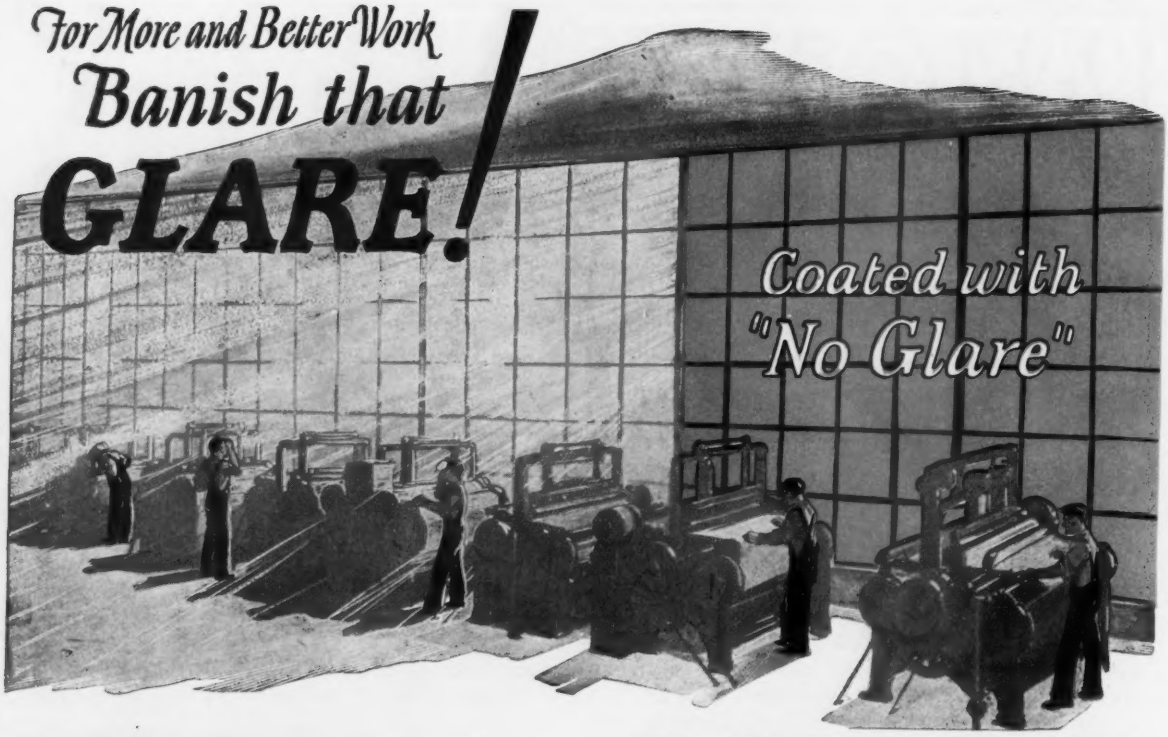
As long as this condition prevails, then it will be a fact that if these two people could be induced to help each other, they both would profit.

I will always believe that two people can run two jobs better if they work together than two people can run two jobs if each one of them only does his own work.

For Example: I just passed through the card room—I found one fellow creeling—the man next to him sitting down watching him creel. I passed on through the spinning room— found some spinners with many ends down, caused from doffing—the next spinner beside her had no doffing going on—sides in good shape, while she was look-

For More and Better Work

Banish that GLARE!



Shades Needed Here —a Heavy Expense

MODERN mechanical window shade equipment costs a lot of money these days—both for installation and upkeep (repairs and replacements). Then there's the time workers lose in adjusting them to changing light conditions throughout the day.

All this heavy expense can be avoided by simply coating your glass with *SKYCO No-Glare*. It saves its slight cost many times over in one season, by eliminating this heavy shade expense.

SKYCO No-Glare is a sky-blue liquid that you paint or spray on the glass of your windows and skylights. The resulting film of *No-Glare* FILTERS the intense glaring sunlight, letting in 94% of the light but rejecting *all* of the tiring glare and 15° of the heat (actual thermometer tests).

"No-Glare" Saves Cost of Shades Here

Goes on OUTSIDE of Glass—yet rain or weather conditions do not affect *SKYCO No-Glare*. Neither will it rub, or flake off. Yet you can remove it easily with warm water and a brush. *Just as effective if applied on inside of glass.*

Surprisingly Economical

A single gallon covers from 700 to 800 square feet of glass—*No-Glare* costs less than ½c per square foot of glass coated. One application lasts throughout sun-glare season. Guaranteed by the makers of the famous *SKYBRYTE Glass Cleaner.*

Convenient Trial Offer

Used by textile mills everywhere. Sold by mill supply houses. Order a trial gallon today at $3.50 and try it on a "glary" window.

THE SKYBRYTE COMPANY, 1190 Hanna Bldg., Cleveland, Ohio

CHICAGO BRANCH: 104 So. Michigan Ave.

Reduces Heat 10° to 15°— Yet 94% of Light Maintained

SKYCO NoGlare

Gives a Cool Diffused Light that is Restful

ing out of the window.

Think—Man—Think.

Get out of the rut—

Find something *new.*

Do it a better way—

A quicker way—

Do some constructive *thinking*—

The average man thinks abstractly. A thought has just got to happen along, and about half the time he will not hold to that thought long enough to get anything done about it.

I have heard people say that it was possible to overtax a brain with studying—I have heard parents say: "Johnny was studying too hard at school, was losing his appetite."

To illustrate:

You have all seen large containers of many kinds—barrels—hogsheads—large tanks, etc., but you have never seen one which could not be filled up—Have you?

The Southern Power Company has built large reservoirs which hold millions upon millions of gallons of water, but they can all be filled up.

Then it would seem that there is nothing in the world which cannot be filled up.

But I can tell you something which never can be filled up. It is the human brain. And the strange fact is that the more you put into it the greater its capacity is. The more knowledge you put into it, the more knowledge it will hold.

Putting knowledge into that brain of yours is just like putting money in the bank, except that money in the bank only brings 4 per cent, while knowledge stored in your brain will bring compound upon compound interest.

Another exception is that you can check that money out of the bank, which most of us do, but no one can take away from you the knowledge put into your brain.

Please remember this statement and you will profit by it: There never was a time in the history of the world when it was so true that *"Knowledge is Power."*

If you will only look back five years to see what you were doing in your room, and compare with what you were doing ten years ago, you can hardly realize what you are doing at the present time. In fact, if I had told you ten years ago that you would be doing things that you are doing today, you would not only have thought I was crazy; but you would not have made any efforts to do it.

Now that same reasoning holds good today, and the man who *can think*, is the man who is going to do things differently from what he is doing them today, and that is going to get him ahead of the other fellow.

The average man of today looks about him and says:

"Looks to me like most everything has been done and there is not much need of my trying to think of new ways or things."

I claim there never was such an apportunity for men to *Think* as there is *now.*

That electric light is a wonderful invention, but did you know that it is 95 per cent *deficient*—that you get less than 5 per cent of the power in the coal converted into light?

Your automobile is another wonderful invention—it may seem almost perfection in its operation, but did you know that it gives you less than 25 per cent of the power, which is in the gasoline you pay for?

There are two wonderful opportunities for some man to *think.* There are thousands upon thousands of others in the mill.

We are spinning practically the same way today as we were twenty years ago—our pickers are just about the same as they were twenty years ago.

It is useless to give you more illustrations. Now you can see that we need men who can think. ....

How much do you read? What do you read?

Do you try to get any constructive thoughts out of what you read to take to your job the next day?

Please remember this:

The progress of any job depends upon the amount of *constructive thinking* that a man in charge of it does.

We are all creatures of habit.

To prove that—

You can do anything at a certain time each day long enough and it will get to where you will know when that time of day comes without having to look at your watch. Therefore, it is so easy for us all to get into the habit of merely going through the routine work.

Do you ever stop to think?

Am I using my time to the best advantage?

Do you ever sit down at night and try to write down what you have done that day? Try it, and see how little you can write out. *Then* ask yourself if you think your company has gotten its money's worth that day. Write something every night.

What have you done in your department in the last six months that is an improvement over what your department was doing?

If you have not made an improvement, you have not been *thinking,* because I have never yet seen any job, or piece of machinery, or any man, but what could be improved upon.

If any man will put his mind on to a thing—keep trying hard enough,—

He is sure to get a new idea—

He is sure to get a better way of doffing—

He is sure to get a better way of tying on a warp—

He is sure to get a better way to creel—

He is sure to get a better way to oil—

He is sure to get a better way to take off cloth—

He is sure to get a better way to strip cards—

He is sure to get a better way to set rolls—

He is sure to get a better way to get his help to cooperate more than they are doing—

I say if a man will concentrate on any one thought and keep at it long enough, he will invariably get a better idea, and do not forget that *"Ideas"* are what the world pays for.

Most any laborer out in the yard, making 17½ cents per hour, can do more physical work than any overseer, but he has not the capacity of *thinking.* He hasn't the capacity for forming ideas.

Study history, ancient and modern, and you will find that all successful business men have achieved success because they *think.*

All the improvements that we have in the world have been based on *"ideas"*, and those ideas had to be born in some man's head, some man who was dreaming of the future.

Therefore let me appeal to you to keep this one idea paramount in your mind—keep it with you always, and that simple statement is:

Save Money

look for
THE GREEN TAG

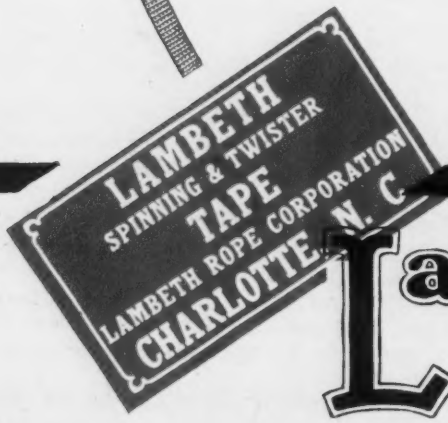
The Lambeth Green Tag or label on each reel of spinning or twister tape is more than just an identification mark. It is an assurance of long and satisfactory service.

A tape which runs easily, smoothly and evenly, as Lambeth Tapes do, is not an accident. It must be *made* with this kind of service in mind. Even widths—perfect selvedges—straight edges—made from extra long staple—uniform weaving . . . and the sincere desire to make good tapes—these are essential factors which distinguish Lambeth Tapes.

You can tell the quality of Lambeth Tapes just by their smooth feel and their high lustre. The real test, of course, is to use them.

We suggest that you make this test without delay —as the quickest way to realize the economies possible through standardizing on Lambeth Tapes.

Prices, samples, or any information we can give you gladly supplied upon request. It's worth your time in dollars saved to ask for complete data.



Lambeth *Twister and*
SPINNING TAPES

Merely to *think*, and out of that *thinking* will invariably grow constructive ideas.

We are entering an age of:

Big business—

Big battleships—

Big mercantile establishments—

Big railroads—

Big cotton mills—

I tell you that there is going to be a big demand for—

Big men who can think.

New Catalog on Belger Continuous Card Cleaner.

The Belger Co., Inc., 227 California St., Newton, Mass., have just issued a new and enlarged catalog giving "The Story, Facts and Figures on Belger Continuous Card Cleaners". This device, which is to be attached to the card, was described fully in the September 1926 issue of COTTON. Its function is to strip or clean card cylinder clothing continuously from one grinding to another without stopping production for this purpose. Among the advantages pointed out in the catalog are increase in production, since the card is not stopped for the daily stripping periods; greater evenness of sliver; regain in waste; saving in power and labor; and cleaner working conditions. The catalog describes the operation of the device in detail, and contains some interesting letters and figures from mills using it as to its operation and results. A copy of the catalog may be secured by those interested upon application to the company.

W. D. Shields Joins Butterworth.

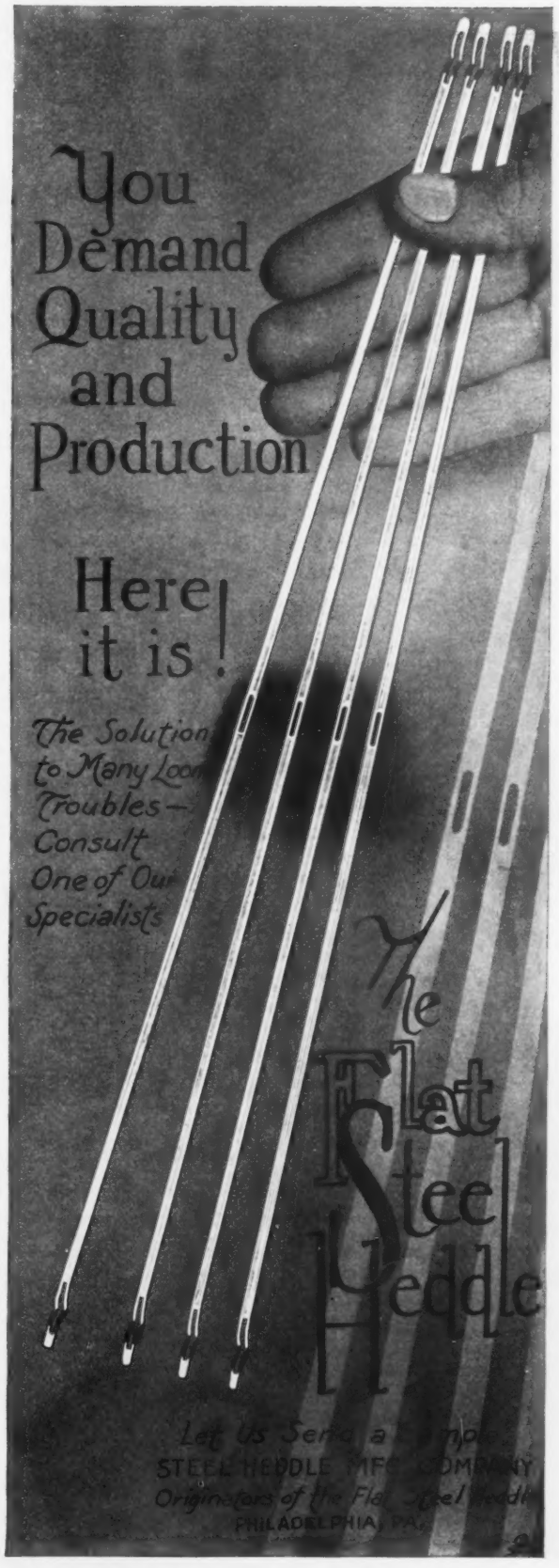
H. W. Butterworth & Sons Company, of Philadelphia, Pa., manufacturers of textile finishing machinery, have announced the addition of W. D. Shields to their southern force. Mr. Shields will operate from Charlotte, N. C., where the southern office is located in the Johnston Building. Mr. Shields' experience has given him a knowledge of dyes and the dyeing of practically all kinds of fabrics. He has specialized on the dyeing of hosiery, having been connected with the Durham Hosiery Mills. He was also connected with the Erwin Cotton Mills Co., West Durham, N. C. He is a graduate of the North Carolina State College, Class of 1919.

Representatives of D. & M. Company.

The D. & M. Company, of Charlotte, N. C., operated by John L. Dabbs and H. G. Mayer, announce that H. A. Blum, of Atlanta, Ga., is now representing the concern in Georgia, Alabama and Tennessee. Mr. Blum will also represent John P. Marston Company, of Boston, handling Gum Tragasol, in this territory. J. A. Franklin represents the D. & M. Company in South Carolina and the Augusta, Ga., territory.

Rayon Converting Plant in South.

Yarns Corporation of America, 40 West 20th St., New York City, converters and dealers of rayon yarns, will erect a rayon converting plant at Spartanburg, S. C. Lockwood, Greene & Co., are the architects and engineers. The plant, which will cost $300,000, will include three buildings with the dyeing and converting plant to be built first. R. Grisman is president. Walter C. Taylor, 211 Kinney Building, Charlotte, N. C., is the southern representative.


You Demand Quality and Production
Here it is!
The Solution to Many Loom Troubles—Consult One of Our Specialists
The Flat Steel Heddle
Let Us Send a Sample
STEEL HEDDLE MFG. COMPANY
Originators of the Flat Steel Heddle
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Fresh Ideas

The Reserve Strength of Leadership

In business as in sports: "He who sets the pace must strain the hardest." The leader in any line of endeavor is the natural target for all competitors. Often these competitors are able to shoot the leader-targets full of holes because their aim is through the sights of progress and their bullets are *fresh ideas.*

Fresh ideas always indicate reserve strength in competitive business. The trouble with many one time leaders is that their ideas lose freshness. Business methods that brought them to the front become their speed limit. They lack the spurt of *fresh* ideas.

Conditions change; methods that were successful become antiquated or ineffective. Some house in the rank and file grasps the new opportunities which the leader fails to see and a new leader comes to the front.

Excellence of product and service are fundamental but they are not enough. To *maintain* leadership, fresh and practical ideas are needed, and their source is *exact knowledge* —exact knowledge developed thru detailed audits, research and up-to-date budget and cost systems, thru the modern, the fresh, the practical in Business Accounting.

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BOSTON	ROCHESTER	KALAMAZOO	CANTON	LOUISVILLE	OMAHA	MINNEAPOLIS	HOUSTON
PROVIDENCE	PITTSBURGH	ATLANTA	COLUMBUS	HUNTINGTON	MEMPHIS	ST. PAUL	SAN ANTONIO
BALTIMORE	WHEELING	MIAMI	YOUNGSTOWN	NEW ORLEANS	DAVENPORT	INDIANAPOLIS	WACO
RICHMOND	ERIE	TAMPA	TOLEDO	JACKSON	DENVER	FORT WAYNE	SAN FRANCISCO
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RUBBER COVERED ROLLS

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510 Stewart Ave., S. W., Atlanta, Ga.

"The Size That Satisfies"

STODGHILL & COMPANY bbl. No. SIZING COMP'D GROSS 585 TARE 70 NET 515 ATLANTA, GA.

Sizing Compound "V" — TALLOW, GLYCERINE, GUMS, DEXTRINE, PRESERVATIVE, WATER

Contains no Chlorides, no Mineral Salts, and no Mineral Oil.

Sizing gums and weighting gums. . . .

Our prices are right for the quality of products.

STODGHILL & COMPANY bbl. No. EMULSO TALLOW GROSS 550 TARE 60 NET 490 ATLANTA, GA.

Emulso Tallow — TALLOW, WATER

The perfectly emulsified product. Contains no Gums, Acids or Alkali.

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

A Question on Turkish Towels.

EDITOR COTTON:

We expect to go into the Turkish towel line very soon, and would like to know if it is practical to weave the pile beam without giving the yarn a light size. This yarn of course being single and not two-ply.

We would also appreciate knowing the numbers of yarn most commonly used in the pile.

We would be glad to have any of your readers making this product to answer these question, based on their experience.

CONTRIBUTOR No. 3043.

Glue for Card Scavenger Rolls.

EDITOR COTTON:

In the February issue, "W.R.(S.C.)" requested a formula of a glue for use on the scavenger roll on the back of a card, to hold the cloth on the roll. I am very glad to give you our formula and method. The formula is:

5 pounds of a good (Peerless) joint glue.
2 quarts of water.
1 quart of vinegar.
15 drops carbolic acid.

The method of preparation is to let this soak for three hours and dissolve slowly with heat if necessary, and thin down with water to the thickness of syrup.

In applying this, this mill has the man pour some of this in his hand and rub it onto the stick at about blood heat temperature. Then apply the cloth.

J. Y. (GA.)

Selecting the Man for the Job.

EDITOR COTTON:

The November, 1927, issue of COTTON contained a very interesting letter from "C. A. B. (Ga.)" on the subject of selecting a man. This subject was brought before us a short time ago by one who found himself perplexed regarding the choosing between a fixer and a certain textile student for overseer.

After reviewing most of the replies to the questions we find, as "C. A. B." states, that most favor is extended toward the fixer. My own reply contained nothing in favor of either selection, but just an outline of what I thought was required of an overseer in any mill today.

It is very easy to understand by the tone of "C. A. B.'s" letter that he would give this textile student the position, simply because, as he states, "I would surely bank on this: With the background, the theory and eight months in the mill, and all other advantages the student most surely has, if he is a likeable fellow, he should make a real good overseer." Maybe, but I am inclined at least to think differently, not because I was wanting to lower at all the prestige of a textile student (I am one myself), but because I have in mind the fellows who are not termed textile students, though they really are, and who work years, not months, in the mill, and study books on the game at home, but in my experience I have noticed these men very often are left out when a chance comes around, to give place to a fellow, a young one mostly, who can show a nice diploma which was presented to him for being successful in answering a certain number of questions.

The reader must please understand that I have gone through the whole business, having had six years at a textile school, but during that time and before I was "diving" among oily gears, running a section, and gaining every possible piece of knowledge of the game, and believe me, all that practical experience outweighed the textile school training, though mind you, the latter is essential. But let a man who is going to run a department work through that department as he studies the theoretical principles of the various machines. Let him know and feel the hard and soft parts of all the operations to enable him to study human nature so as to fit himself properly for being an excellent manager of help. Also, if a man is employed for a few years, he is bound to become familiar with the various ways and means by which some help "get by" on certain jobs, and of course knowing this, such a man could very easily detect and employ the right tactics to eliminate same, simply because he is "on to the game."

Now a man like the one already described is the kind of a fellow I like to see in charge of a department, one who knows his theory and who can when necessary roll up his shirt sleeves and fix any breakdown. He is the fellow who will keep everybody on their toes, and the "getting by" idea so flourishing nowadays, will be cut down somewhat, for fear of a rapid detection because the help will know their man.

Of course a textile student, an exception perhaps, may after having passed a course and had a few months in the mill, make a good overseer, but let me say here, it is my opinion that a good deal depends upon the ability of the under men. This I say from experience, and the truth is that the practical knowledge exhibited by some textile students I know is simply astonishing.

What would you think of a fellow who had passed a four year's textile course and who had never known how to set a card and could not calculate by the gearing the draft of that same machine. Still that man today is an

No grease can get past this seal and it cannot wear out!

Here is a grease seal that is positive insurance against damage to goods from oil leakage. It is made of steel and is indestructible —it keeps the grease in and the dirt out

The seal insures retention of lubricant and insures continuous efficient operation with very little attention—greasing once every six months is all that is required.

Dodge-Timken Bearings are rugged and economical. Textile mills are installing them in increasing numbers because they are built to fill their needs.

We will be glad to send full particulars and interesting bulletins on request.

DODGE
MISHAWAKA
TIMKEN
ROLLER HANGER BEARING

DODGE MANUFACTURING CORPORATION
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Power Transmission—Material Handling—Special Machinery

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overseer. Why? I think some of your readers can guess the reason. Still, I am willing to admit that the foregoing does not apply to every student, though as I know several, I think such students ought to be allowed a little longer practical experience in the mill before being elected to the job of overseer, the reason being as previously stated. Most of these fellows are seemingly ambitious, which is quite in order, and all hope for good jobs no doubt, but up to the present I can only see them being fitted for doing what is known as research work in the laboratory, which, of course, is essential, but as for running a department in the mill as it should be, I am sure not every one is equipped for the job, and that, as I have previously stated, is my experience, though my respects go to all textile students, as we need them, but as overseers, let them have more and more practical experience on the job they hope to run. D. E. (R. I.)

Why Looms Lose Bobbins on the Change.

EDITOR COTTON:

This is in answer to "G. T. (Ga.)" as to looms losing quills on the change. He says in the November number that he has 36-inch E Model Draper looms and that the transfer seems to be set properly, and that he does not use the feeler motion. As I understand the question, one or more of his bobbins go over the shuttle to the bobbin can at the same time of the transfer of the empty bobbin.

This cannot be entirely eliminated, but there are several things that can be done which will help out a lot. I am bothered myself on some 48-inch Draper E Model looms, and this is what I have done, and it has helped out considerably.

In the first place, I would advise "G. T." to set his stop motion cam so that the filling fork will not catch on the filling motion latch, before being operated by the filling; but he should not set it too slow, as the fork will come back and be caught by the latch before the latch gets far enough ahead.

A good way to set the cam is to push the lay forward to the beat of the cloth full ahead; have the filling fork to drop in the latch with a space of about 1/8 of an inch between the heel of the fork and the notch in the filling motion latch.

There are several automatic shuttle threaders on the market. There are a few good ones, and a lot of bad ones which will cause a lot of mis-threading.

It is important to keep a friction in the shuttle. I have good success with two hair brushes, one at the top of the bobbin and one at the bottom. I have done several things to try and eliminate this trouble, some of which helped and some others did not help.

There is a lot in teaching the battery hands to place the yarn so as to have the filling enter the threader when being transferred. It will be found that the most of the breakage occurs at the time of the transfer.

When setting the transferrer one should be sure and have the barrel of the bobbin leave the battery first. The transfer fork should not come in contact with the bobbin before the transfer head, as it will cause the small end of the bobbin to go too low in the shuttle, causing the filling to break on entering the shuttle.

One thing I did that helped out a lot was to put an extension of about 1½ inches on the yarn holder, that is the

Try Them

BE CONVINCED BY COMPARISON

If you've never tried "Bondaron" Lug Straps, you have no idea of their amazing strength, extreme mellowness and cushioning effect.

We know that "Bondaron" Lug Straps are superior to others on the market, because we have proof in the form of letters and repeat orders from scores of the largest mills throughout the country.

Bondaron LUG STRAPS

outwear straps previously used, sometimes lasting four to five times as long. Reports show that they cut to the minimum the breakage of picker sticks and save the time required to replace them, to say nothing of the increasing of production.

If you are willing to be convinced, and want to cut your loom leather costs in half or more, purchase a trial order of "Bondaron" Straps today and compare them with any other strap on the market.

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Leather Curriers and Manufacturers of Belting and Textile Leathers

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Robots for Profits

Robots, as you doubtless know, are imaginative mechanical men. Press a button and they do the work of men of flesh and blood. They function automatically, tirelessly, efficiently.

The idea is sound enough. Any truly efficient labor saving machine can well be considered a robot.

So—the Termaco Roving Bobbin Cleaner—a very robot for profits.

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red casting on the battery. That allows more yarn from the end of the bobbin to the yarn holder.

I have been looking for a discussion of this subject in COTTON for a long time, and I hope that we will hear from a number of weavers, thereby getting different angles, which I trust will be of benefit to all concerned.

P. T. S. (MAINE).

EDITOR COTTON:

Replying to "G. T. (Ga.)" as to what would cause a loom to lose quills on the change, I take it for granted that he is on the lookout for shuttles rebounding or not entering the shuttle box properly and the setting of his transferrer, so I will pass this up and discuss other phases of the matter which are often overlooked, and perhaps some things that many fixers do not know.

First. The shuttle should be pushed well up into the shuttle box so that looking down through the bobbins in the battery to the bobbin in the shuttle, and sighting by the first rings on the bobbins in the battery, the middle ring on the bobbin in the shuttle should be seen. This means that the bobbin in the shuttle should be about one ring ahead of the next bobbin to be transferred to the shuttle. If the shuttle goes too far up into the box the next bobbin will strike too far back on the shuttle spring and cause trouble.

If the picker is not worn out, an extra piece of leather should be put behind the picker stick. Then when a new picker is put on if the shuttle does not go far enough up, the extra piece of leather should be taken from the back of the picker stick.

Now for a look at the rocker shaft bearing. Take hold of the lay end, raise it up and see if the bearing is loose or worn out. If the rocker shaft bearing is worn very much it will let the lay raise high enough for the transferrer to knock the new bobbin through the shuttle. Sometimes the rocker shaft will be worn down instead of the bearing. In this case, loose the lay swords and parallels and take a Stilson wrench and turn the shaft one-fourth around and fasten the swords and parallels again. This eliminates the perpendicular lost motion for a long time.

The lay should be so tight against the sword that it will not spring down in front as the pressure from the latch finger comes against the bunter. Put the wrenches on the nuts to be sure of this. If the nuts on the bolts can be tightened one half around, a loom has possibly been fixed. The bunter should be as high as possible, too. If it is too low, the latch finger has a tendency to press downward as well as parallel with the lay, and if there is a weakness anywhere it will certainly give when the bunter is too low. Sometimes a bunter will not stay up unless a wedge of some kind is put in the hole and under the bolt through the lay.

If the crank shaft bearings are loose or worn very badly it will give the lay too much lost motion back and forth. The crank arms being too loose will give it the same effect, and this will cause the lay to come far enough forward sometimes to knock the new bobbin through the shuttle.

The transferrers will wear out, too. The part that comes in contact with the bobbin rings will finally wear down at the back side and sometimes allow the bobbins to slip to the back of the shuttle.

I have also seen some shuttle springs too strong. If there is any weakness anywhere a strong shuttle spring will find it, but it does not show it to a fixer; it has to be hunted for. The guide head will wear out too, or sometimes the clamp will break and fall off and be swept up and never missed until something goes wrong. This will let the lay have too much end play and sometimes have the shuttle out of position under the next bobbin to be transferred.

Now for a few little things that will "stick" a fellow. Sometimes a loom "misses" a bobbin and a fixer will naturally look at his transferrer setting and finding that it is putting the bobbin too deep, or not deep enough, he adjusts his latch finger to the required setting and goes on. Possibly in an hour, or five hours, or a day, the same thing happens again to the same loom and the fixer readjusts his latch finger again, and it is possible for this to go on for a week or more. When the latch finger is adjusted it "stays put," upon going back and finding that it needs readjusting, then something is wrong, and here are some of the things that are likely to be wrong:

The lay eccentric pin just barely loose enough to work around enough to bring the lay too far forward or not far enough forward; the bunter just barely loose enough to work up or down a little at times; a pin out of the rocker shaft bearing and the bearing just loose enough to work up or down a little at times; a pin out of the rocker shaft bearing and the bearing just loose enough to work up or down, this will raise or lower the lay; the set screw out of the front of the crank shaft bearing and the bearing just loose enough to work a very little. This will throw the lay too far forward or too far back.

Perhaps others can tell "G. T." more. I hope he will find help from some of the suggestions, because from actual experience I find that a man can sleep a lot better when he learns these little things mentioned herein.

JACK (TEXAS).

EDITOR COTTON:

"G. T. (Ga.)" in asking for help in overcoming the trouble he is having with his looms losing bobbins on the change does not state whether the bobbin from the battery goes on through the shuttle or whether it strikes the empty bobbin and fails to push it out.

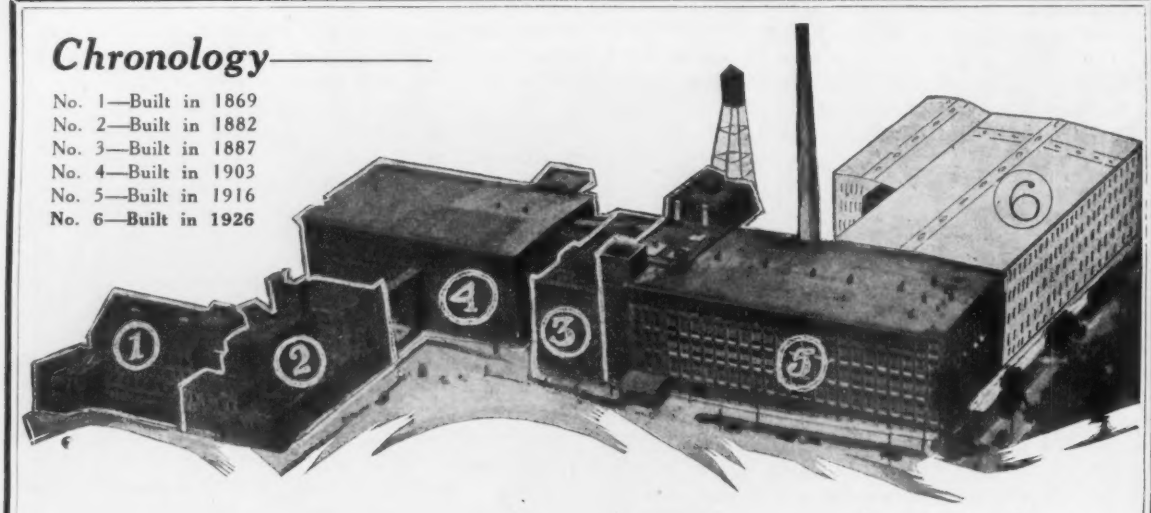
There are a great number of things that might cause a loom to lose bobbins on the change. We will discuss the most important of these causes and hope that "G. T." will find the solution to his problem among them.

It is possible for the transferrer to be set so as to transfer the full bobbin straight into the shuttle and yet be incorrectly set. The transferrer can start the bobbin into the shuttle and have the bobbin exactly in the center with respect to the sides of the shuttle and yet go down too far and in that way push the full bobbin through the shuttle right behind the empty bobbin. On the other hand the transferrer may not go down far enough, and the result is that the full bobbin does not strike the empty bobbin with enough force to push out the empty bobbin and put the full bobbin in its place.

Either of the foregoing troubles may be remedied by setting the transferrer latch to strike the bunter on the lay at the proper point. If the transferrer is not strong enough in its action to push the full bobbin into the shuttle the latch should be set forward a little. This will make the bunter engage the latch sooner, and by the time the lay passes over the front center the transferrer will have made a longer and stronger stroke.

Chronology

No. 1—Built in 1869
No. 2—Built in 1882
No. 3—Built in 1887
No. 4—Built in 1903
No. 5—Built in 1916
No. 6—Built in 1926



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The foregoing being true, then the proper procedure when the transferrer is too strong and pushes the full bobbin through the shuttle, is to move the latch backward, or in other words, away from the lay.

To determine the proper setting of the transferrer, take all the bobbins out of the battery and place an empty bobbin in the shuttle; then bring the lay to the front center with the shuttle in its proper position under the battery. With the lay in this position the transferrer should just touch the rings on the bobbin, the bobbin being in the shuttle in the normal position of a bobbin that has been properly transferred from the battery.

This setting is only an average setting and will have to be modified somewhat, depending on the speed of the loom. Here we run into something that is apparently just the opposite to what it would on first thought seem to be. That is, the faster the loom is running the slower should be the motion of the transferrer in starting, and vice versa. In a loom running at 170 picks per minute the lay comes forward with greater momentum than the lay on a loom running at 140 picks per minute. This momentum is of course imparted to the transferrer when the bunter on the lay strikes the latch which controls the motion of the transferrer.

For this reason it is necessary to set the latch to engage with the bunter a little later than if the loom were running at a slower speed. At the slower speed it is necessary to set the latch further forward. In this way the bunter strikes the latch sooner and gives the transferrer the proper force necessary to push the full bobbin into its place in the shuttle.

Another common cause of looms losing bobbins on the change is a rebounding shuttle. This may be overcome by adjusting the shuttle boxes and the shuttle feeler and in some cases reducing the force of the picker stick in throwing the shuttle across the loom. The object of the shuttle feeler, or rather one of its objects, is to see that the shuttle remains in its proper place in the box and does not rebound to where the rings of the bobbin in the shuttle will not come directly under the transferrer. If the shuttle feeler is not properly set, the shuttle may rebound and the result is that the full bobbin does not strike the empty bobbin where it should. When this happens the butt of the full bobbin may strike the empty bobbin too far away from the butt and the full bobbin will not be forced into the shuttle, or if forced into the shuttle will catch only one or maybe two notches in the shuttle spring. When either happens the result is likely to be broken bobbins or batteries, and in a great many cases damaged warps.

A worn picker or picker stick will allow the shuttle to go too far into the box and this may mean that in transferring, the butt of the full bobbin instead of striking the butt of the empty bobbin will strike the cover of the shuttle spring. Most shuttle springs are so designed that when this happens the bobbin will slide on the cover of the spring into the spring notches. However, it is not safe to rely on this feature to any great extent. Spring covers are made this way to take care of emergencies and not to do the work of the transferrer.

Again the shuttle feeler plays an important part. Of course it is impractical to give any iron-clad rule for the distance the tip of the shuttle should be from the shuttle feeler. We may put on a new picker and notice that the tip of the shuttle is touching the shuttle feeler when the bobbin is transferred. After this picker has run for awhile it will most likely be noticed that the shuttle tip does not touch the shuttle feeler. For this reason it is only possible to give some idea as a basis for the position of the tip of the shuttle relative to the shuttle feeler. From barely touching the shuttle feeler to a position 1/32 inch to 1/8 inch away from the shuttle feeler is a good position for the tip of the shuttle to be in when the bobbin is transferred.

Of course it is impossible to position the shuttle to such a fine point and expect to keep it there. It is not impossible for an overseer or second-hand to get in behind his fixers and see that pickers are replaced when they should be. Some fixers are extremely careless about this and will allow worn pickers to run until they are thrown off by the motion of the picker stick. A loom with pickers in this condition will give a great deal of trouble on the transfer and may break a number of shuttles, bobbins and batteries.

Worn rocker shafts and rocker shaft bearings, and also a worn crank or Pittman arms, will also cause looms to lose bobbins on the change.

CONTRIBUTOR NO. 903.

EDITOR COTTON:

I notice in the November number that "G. T. (Ga)" is having some trouble with looms losing quills at the change. He states that he is using 36-inch E Model Draper looms and that the transferrer seems to be set properly. He makes change from the fork, not using the feeler motion.

I have the same kind of looms and have gone through a similar trouble. In answering this question I would state first that the looms will not transfer if the shuttle is not in the proper place. He should see that his transferrer is not too deep, but is going down low enough to set the full bobbin in the shuttle. Large bobbins of filling will cause this trouble. Loose or worn crank arms, worn rocker shafts or bearings on the battery end will also produce this difficulty. After checking up on all of these things I found my trouble was in the shuttles and bobbins and in my wood binders. We had some bobbins with large rings on them and some with smaller rings, and in some particular shuttles the springs were very soft and in others they were not so soft. We had some thick and thin wood bobbins. I asked the manager to get me some standard shuttle bobbins and binders made by the loom manufacturers, and my trouble was over, and I was able to take off one of my smash hands.

Just whether the foregoing covers "G. T.'s" problem I can't say, but I hope that he will at least get something out of it. I learned, first of all, to be more careful about the kind of supplies I use on a Draper loom.

I might say in conclusion that one other cause of this difficulty could be a picker head too low or too high.

D. L. (TEXAS).

EDITOR COTTON:

I notice in the November number that "G.T.(Ga.)" asked what will cause a loom to lose quills on the change. It happens that we are running 36-inch and 40-inch E. Model Draper looms, the same model that "G.T." says he is using. First, I will say that with looms running 160 picks per minute, the transferrer should be set just deep enough so when it is down the shuttle will have just a little play up

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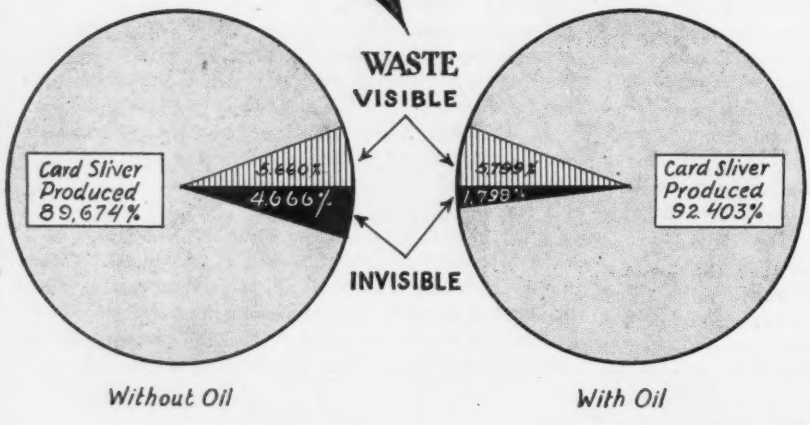

This mill manufactures, from 1" Staple Low Midlands cotton, yarns which they subsequently weave into piece goods furnished to their own account.

These figures were obtained by carrying out a special test to determine the exact advantages to them in the "Breton Minerol Process". The possibilities of other mills duplicating these results depend upon the type of cotton used and the conditions existing in each individual mill.

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and down underneath the transferrer. If the transferrer fits down snugly on the quill, there is danger of knocking the quill clear through the shuttle. If the bobbin disk gear is worn, and more or less stuck on the spindle, it will bind and turn just about half the amount it should. Therefore, when the transferrer starts in motion it will knock the quill to the back of the loom. Any quills loose in the hopper will simply fall out, more so when new quills and old ones are mixed together. The hopper being set for the old quills, which are worn, will not take the new ones, and vice versa. These three things should be watched very closely, but there are a number of other possible causes which I shall mention.

Shuttle going too deeply in the box, cause being a worn out picker. Picks too high or too low, not properly boxed. Eccentric pin loose. Pitman or crank arms loose, causing the lay to make a short double stroke when at the beat of the cloth. Loose pulley or drive gears. Worn out rocker shafts and bearing, giving the lay an up and down motion instead of a steady rocking motion. The bolt that fastens the breast beam and loom side together may come loose, causing the stay pin to work out, giving the hopper stand an unsteady foundation. Shuttle not getting up in the box or bouncing back.

Finally, old worn out quills are one of the worst things that a mill manager can stand for on Draper looms.

S. H. (S. C.)

A Loom Numbering Method.

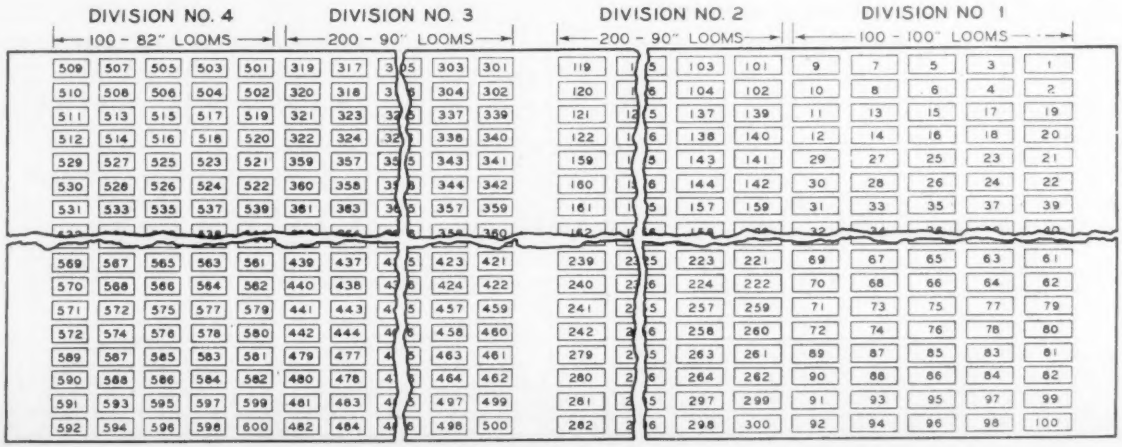
EDITOR COTTON:

You published in the January number a question from "Contributor No. 3023" asking for methods for numbering looms. I am glad to outline in this letter our system for doing this.

In our weave room we have a total of 600 looms, with a cross alley in the middle of the mill. In other words, 300 looms on each side of the spare floor. The first 100 looms next to the office are 100 inches wide. The next 200 looms, up to the spare floor, are 90-inch looms. The next group of 200 looms beyond the spare floor are 90-inch looms, and the next 100 are 82-inch looms.

The 100-inch looms are numbered from 1 to 100, inclusive, and designated as Division No. 1. The next 200 looms are numbered from 101 to 300, inclusive, and are known as Division No. 2. The next 200 90-inch looms are numbered from 301 to 500, inclusive, and are known as Division No. 3. Division No. 4 includes the last 100, the 82-inch looms, which are numbered from 501 to 600, inclusive. The accompanying sketch of the south side of our room will give you an idea of how this system of numbering is applied.

CONTRIBUTOR No. 3024.



The Advantage of Being Systematic.

EDITOR COTTON:

I want to say something regarding system as I see so much need of it in the mills. Of course to a certain extent, we all have it, but how much of it is understood and enforced. We have had it all our lives until we have come to the conclusion that every worker is familiar with it and we seldom take the time to rehearse it with the operatives. Like our old sacred hymns it sounds good any time. I just happened to think of once when the editor of COTTON visited the writer, who was at that time overseer of a large carding room, and had a long and helpful conversation with him; one that was full of encouragement and greatly revived his interest in the textile movement and in the department of "How Other Men Manage"; which interest still persists. During our conversation I made the statement that I had written about the discoveries I had made already, things with which the average mill man was already familiar, and he said that rehearsing the old problems was good for the old and news to the young, which was very good news to me.

System and the understanding of system begins in the opening room. Why do we mix cotton thus-and-so? This should be explained to the men in that department. To get an average mix of the cotton in the warehouse (we assume that the cotton has been bought to conform with the numbers and the product manufactured at the mill) and how the droppings around the machines should be distributed throughout the mixings in the openers and the samples which the buyer has to look over is to be mixed in with the regular run of cotton. This should be mixed regularly so as not to be noticed in the regular run of cotton and interfere with the mixings.

Next, in the picker room. The droppings from around the pickers should be kept clean by not allowing them to scour around on the floors. This can be done by picking them up when they are dropped and putting them in the hoppers while clean. The sweepings around the pickers

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should be run in with the spinning room scavenger roll waste in a waste machine and put into the regular mixing of the cotton for the hoppers to carry through and regulate for the intermediates or the finishers.

The system of cleaning the machines inside and out. Don't have a system unless it is enforced—what shall be cleaned and how and when oiled. Oiling is the greatest part of fixing expense on any machinery.

Card cleaning, oiling, stripping and grinding. All this should be very carefully carried out. The cleaning should be done in such a way that the foreign matter from the cleaning is not thrown back into the work. The stripping should be done in a neat manner, taking care to clean the cylinders (doffers included) when stripping is done, for there is great danger in stripping if the cylinders are not cleaned. The chewed-up short fibers that remain in the clothing will leak out into the slivers and cause weak places in the yarns. Grinding should be done regularly, not allowing the cards to go too long without it. A careful setting should be decided upon for whatever class of work is being run. The grinder should be helped occasionally to set one up. This should be periodical and pretty often. It makes the average grinder feel good to know that the overseer is taking an interest in him. Then, too, the overseer knows just how the grinding and setting is being done. It is the overseer's duty to keep posted on this anyway.

Drawing frames. There is a certain amount of human nature to contend with at the drawing frame in the tenders and the card hands. They will watch one another and let the card cans run to suit the drawing frame tenders. The cards must be watched to see that they do not run too long and cause the cans to bulge out. This will cause thin places in the slivers.

At this point a system of cleaning is of great importance; also creeling in the drawing frames from the back of the frames. There is a great difference of opinion as to how this should be done. It is the honest opinion of the writer, however, that the best way in the long run is to set them in as they run out and to guard against doublings and singlings. Oiling can best be controlled according to circumstances and according to the individual's situation. Clearers should be cleaned regularly and care should be taken to see that the waste is not carelessly handled and regular attention should be paid to the doffing of the cans and size of the trumpets and speeds.

Slubbers and roving frames. This is a very critical process and care should be taken at all of the processes to see that the tensions are just what they should be and the twist properly proportioned as is required to make it run well at the succeeding processes. Sometimes roving will run well when it is not drafting to the best advantage of the product. This is a point to guard against. Figure the standard twist and go as close to it as possible, keeping all of the pressers wrapped the same on every flyer, and when one won't run this way break it back until next doffing time. Creeling should be done very carefully; see that the piecing is very uniform, as at best there will be unevenness, but make it as even as possible. Clean the flyers and carriages at every doffing time, oiling the spindles as much as is required. This can best be determined on the different roving frames.

The doffing boxes should be perforated in the bottom so that the waste can drop through and not accumulate to get on the roving and be drafted back into the work; also

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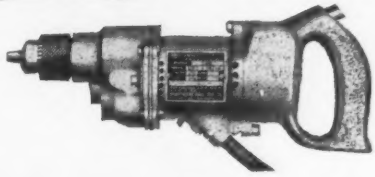

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they are easily cleaned and look much better. Laying up roving in the spinning room should be done in such a way as to scatter out the different doffs from the roving frames over as many spinning frames as possible, to regulate various things that happen in the different roving frames. Now this is a part of the system that we've been trying to carry through this article, and it can be carried if the operative understands it, and it is well worth while to explain this all along. As a general thing an operative takes a pride in doing something which brings results that he can see.

The system of letting the roving run down as low as possible before changing in the spinning creels is one that will save wonderfully in the amount of white waste, especially with a roving cleaning machine. Since installing one of them we have cut our white waste down fully 60 per cent, and at the same time saved the cutting of the bobbins which they were formerly doing without the roving cleaning machine. Show the spinners that they can let the bobbins run much longer and then have time to take them out for the bobbin machine before they run out. This saves waste and work for the spinners and at the same time saves production for the yarns, which means not paying for the work going through the machines twice.

The creeling of the roving in the spinning, the same as in the carding processes, should be done carefully so as to avoid doublings and singlings. The singlings make weak places and the doublings coarse, which shows up very prominently in the goods and are very objectionable to the buyers of the cloth.

A system of overhauling is the back bone of spinning, and of course we assume that it is done okeh. There are various duties assigned to the overhaulers other than the remodeling of the spinning frames, which makes it easier for the department as a whole, and at the same time arranges it so they can take up these various duties and keep the department intact. The tying on of the bands should be very carefully done. Chicken head knots should never be allowed in tying on spinning bands; the splicing or loop knot should be required. Another good thing is to have a piece of bee's wax in the hand of the bander, and when he ties on a band and places it in the whorl, hold the wax so as to give it a good coat, thus insuring that grippy effect and non-slipping that often happens with the plain cotton band. The shoe-maker waxes his thread. What for? Ask him, as you will see him before you can hear from me.

The system of setting the spinning spindles in line with the guide wires is often taken too much for granted; they should be set exactly to the line. If the guide wire with which to do this is not on hand it will pay to obtain it, as there will certainly be a marked difference in the running of the spinning with it and it will not take long to pay for itself. Then think of the little side spinner who has to contend with this defect. Think of how much more pleasant her work is made with it. It automatically makes more production, and she deserves that much forethought anyway. We are in business to stay and it should be made as pleasant as possible while the game is on.

It is customary for the doffers to get away from the frames as quickly as possible after doffing, as most of them doff by the frame or side. This should be watched very closely to see that they have pieced up all ends on the sides before leaving them and that the spinners take off the laps that accumulate while getting up the ends that come down from the doffing.

Doffing boxes should be made of a certain size so that when doffed they can be run to the spoolers, and the price per box on spooling will be regulated according to this doffing box. This will save the expense of emptying the doff boxes, to be again gathered up and carried to the spooling in another box. It will only take a few more boxes.

In the spooling room the boxes per spooler should always be the same. Some helpers that wait on the spoolers will eventually get the habit of favoring some special spooler hand with a light box. This will cause the rest of the spooler hands to begin talking to one another, and, before long, he will be favoring all of them to keep them from telling on him, thus making the cost of spooling come higher. Make it level at the top of every box regardless of who is the spooler hand.

Spooling is a very important process; it contains a lot of kinks. The spooler hand should always turn the spool loose just before letting the thread go which she has just tied; this will avoid kinks and loose places in the spooling. When an end comes up on the warpers that has a loose place, it is more than likely to make a jerk and cause a breakage of the threads on the warpers, or a kink, that will either stop the warper or run on in and be sized at the slasher as a kink and may straighten out and make a stoppage on the lom. Long knots should be guarded against, but if the knotters are kept in shape there are not likely to be any long knots.

Setting and keeping of the traverses in shape to make the frame build a good spool is a great saving of waste and the yarn runs off so much better on the warpers and is not so likely to slide off and break back on the ends of the spools. Care should be taken to see that each spooler hand cleans up her pieces each day and is not allowed to cut anything off the bobbins. If there are some that have to be cut off, there should be someone especially designated to do this work, then there will only be one responsible for the cut waste. Always have plenty of spools for the spooler tenders where they can get them when the full ones are ready to take off, and keep the full ones removed to avoid falling off the spolers and getting broken up.

Hints on warpers has been gone into in another article by the writer and will be omitted at this point, but it means cleaning, oiling, good repairs, moderate speeds and careful operatives.

Slashing is to the weaving what picking is to the carding, and where system surely must be adhered to strictly. Find the mixture of sizing compounds and the amount of boiling you need and see that the system is carried out, keeping the size to a temperature of at least 196 degrees heat in the size boxes. The slashers should be run as low on speed as it is possible to get by with on production; clean the size boxes out regularly; have strings run through the sheets of yarn whenever it is necessary to separate the threads that have become crossed or broken. Care should be taken not to carry too high a steam pressure on the cylinders, as this will cause the yarn to be too dry and become brittle and dead, to lose its elasticity and go bad on the weaving. See that the emersion rolls do not go too low in the size boxes and that the size covers the rolls on the top regardless of what anyone says. Keep the flannels good and smooth, for if there is a low place it will mean that this part is sized too heavily and will give trouble in the weaving. If there is a storage tank a by-pass should be

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made in order to convey the new size to the storage tank without interfering with the regular run of size.

Many mills have a habit of conveying it through the size boxes. This is likely to confuse the standard one way or the other. If there is not a return sizing system one should be procured, if something else has to be sacrificed in order to get it, for then one can be doubly sure of a regular mixture of the size and the circulation of the size insures better mixtures and less danger of it getting too thick on the top of the size in the size box which will cause "hard size" in the work. Some people have told me that they did not hove room for a return pipe; to this I said: "Grade out under the flooring ,and build an extra flue under there if necessary to shield this pipe."

Speaking of systems makes me think of going to a place one time where there were a set of hands, a size cooker particularly, who was supposed to cook his size one hour and forty-five minutes before turning it into the size boxes. This was before the storage tank was put in. The weaver knew that the size was not being cooked sufficiently, but to catch him was the job, for he was an "old coon" in experience. He finally caught him, however, putting the size in the boxes after it had been boiling less than forty-five minutes. Well, he laid him off and the next man began telling what this old man had told him; among some of the things were: "I've been here too long and I know that won't do, and he'll find it out." Since that time, however, the weaving began to pick up until it was going well because his system was being carried out It looks different to a slasher man who stays in the slasher room than it does to the man who has the oversight of both slashing and weaving, which brings us back to the point that the weaver should have charge of the slashing department and its operaives.

CONTRIBUTOR No. 14.

A Remedy for Static.

EDITOR COTTON:

Replying to the question by "E.D.(N.H.)", who desires a remedy for static, will say that as I have had a large and successful experience with the handling of dyed raw stock, I believe that I can direct this contributor how to successfully operate with raw stock dyed cotton.

In the first place, he must be sure not to use the newly dyed cotton too soon after dyeing. Dyed raw cotton must age first. It must have a sufficient amount of time during which to re-condition itself, as it were. This is so important that one of the largest and most successful handlers of raw stock dyed cotton in the South, always keeps nearly a thousand bales ahead for future use. Several dozen bales of each color are dyed and put into the store house and allowed to remain there for weeks ahead of the time when it will be needed. This has been going on for years, and they have never used any softeners in the dye-house.

Raw stock dyed will always run at the best when it is allowed plenty of time to age. This large mill has the best running mill on colored goods that anyone would care to see. The method is to put up their supply of raw dyed stock into soft bales and then to store them in the storehouses where the air is neither too dry nor too damp.

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ton as it is being put through the bale breaker is also an additional help. They have found this to be the most beneficial agency to stop static electricity. It also lays the dust and improves the operation of the work. I would not use any salt solution.

I trust this advice will be helpful to the inquirer.

I. K. (CONN.)

EDITOR COTTON:

In the January number "E.D.(N.H.)" requested the readers to give information for spraying dyed raw stock to eliminate static. I have found that a satisfactory method of eliminating this trouble is by the use of the Breton Minerol process of spraying a mineral oil by means of pump and head attached to the breaker opener feed box. In my experience, this has always given good results when applied in small quantities first to determine what each condition will stand. I find that one half of one per cent is the proper amount to use for the start, increasing to 3/4 per cent, later going to 1 per cent. The man in charge of the carding can determine the amount very easily by following up every two weeks after the percentage of oil has been raised.

CONTRIBUTOR No. 989.

Kinky Filling on Shade Cloth.

EDITOR COTTON:

I notice in the December number some answers to "J.N.(S.C.)" who apparently was having trouble with kinky filling in shade cloth. I should think that to a great extent the same thing that causes kinky filling in shade cloth would cause the filling to kink in practically any other plain weave. We recently had to overcome this evil, and found that a great deal of it was due to the stroke on our filling bobbins being too short. We always try to get 1¾ inch stroke on our frame, but on some of the older ones there is a limit of adjustment, and we found that in some cases we were getting as short as a 1⅜ inch stroke, and it was these bobbins that were giving us this trouble.

I merely mention this that it might be passed on to "J.N.", as he may find a similar trouble in his spinning room.

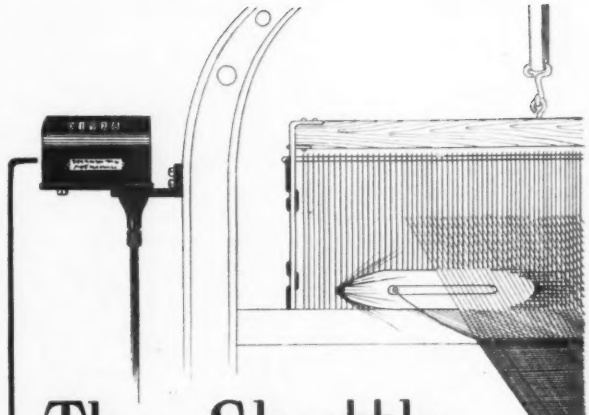
T. S. (S. C.)

Humidity in Spinning.

EDITOR COTTON:

In this letter I wish to bring out the question of humidity in ring spinning departments. As a rule, it seems that spinners can't get enough humidity in their respective departments. I always thought so myself until lately. I have a room containing 22 frames, being an annex built about five years ago, but only occupied about six months ago. I have no humidifiers in that department. Also, it is on the north end of the mill; no double windows, when winter came on with its dry and snappy weather, I was worrying because I thought that the spinners would be unable to care for their sides. How I was able to keep the frames in operation with the work going as good as the rest of my departments, where there was humidification, I will pass this along to other readers.

I have always been a great reader of textile articles and



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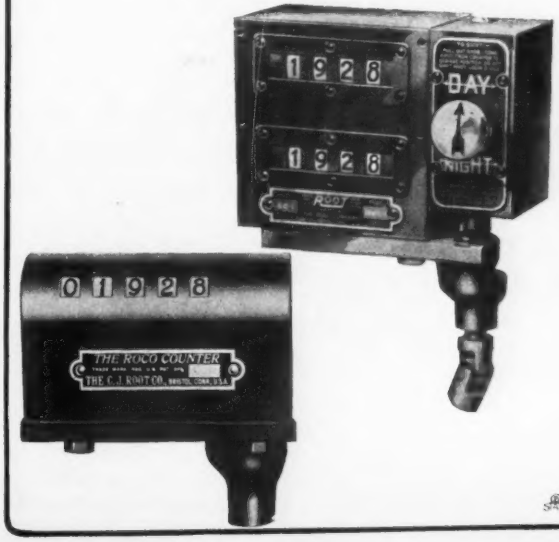


have memorandum books in which I write down articles which I think will be of value later on. Sometime ago I was looking over one of these books which contained an item that I thought might help me out. The item was, "heat from steam pipes kills electricity in departments where there is no humidification, I put this into practice, with success. I keep the room at about 86 degrees, but do not keep the steam on all the time. As I go around I can tell how the work is going. If I see the steam is needed I turn on the valve for ten or fifteen minutes, or until I see that everything is okeh and then I shut the steam off.

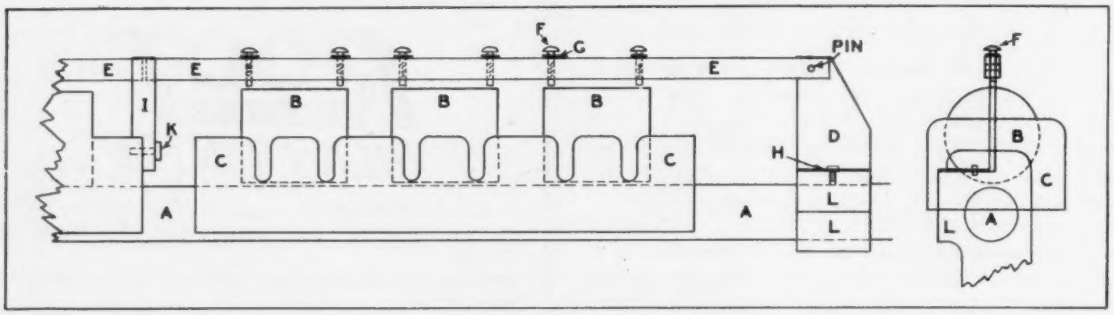
The superintendent and the treasurer come into the department often and wonder how it is that I can operate my frames without humidifiers. I have told them how I overcame my difficulty, but really, it seems impossible.

CONTRIBUTOR No. 983.

An Electrical Device for Drawing Frames.

EDITOR COTTON:

Here is the illustration of a device for the electrical stop motion drawing frames. The device sets over the small rolls at the back of the drawing frames, and is intended to prevent lumps and double ends from passing the drawing rolls to later break down at the trumpet. With this device attached the lumps or double ends with lift



A = the back roll (electric.) B = the small back rolls. C = frame for small back rolls. D = bracket to hold bar E. F = cap screws. G = lock nut on cap screws. H = screw to hold bracket to drawing frame. I = bracket on second head to hold bar E. K = screw to hold bracket I. (Note, Bracket I is insulated from frame C.) L = bracket for bearing for roll A to run in. (Note. Roll A supplies electricity to bar E.)

roll *B*, in the sketch, which will come in contact with the set screw *F*, forming a contact and knocking off the frame. Then the lump or double end can be straightened out and the frame started with no waste and very little loss of time. This will also mean less piecings at the front of the drawing, producing a better sliver for the next process. The adjustable set screws may be set according to the thickness of the sliver. A study of the sketch will make the operation plain.

CONTRIBUTOR No. 969.

Running Your Present Job.

EDITOR COTTON:

I have been a reader of COTTON for the past fifteen years and have never before attempted to write for the magazine, save on one occasion when I wrote in appreciation of "Old Timer", and let me say now, before I write further, I want you to tell "Old Timer" he is still going strong. While I have not as yet been able to get to the place where I think I am as good as he is, he is still a great help to me, especially when everything seems to be going wrong.

But what I wanted to say is just this. We read all kinds of discussions on first one thing and then another, but seldom anything on what to me, is the most vital part of running a mill or room, namely, Running Your Present Job. "Old Timer" hits on that of course, and he is excused. There are many men in rooms today who think they ought to be superintendents, when in reality, they are not running their rooms as they should be run, and as long as they continue in this course they will never run a mill. In the first place they will never get the promotion, if the superintendent with whom they are now knows his business or is honest. Every honest superintendent knows that this type of man is not worthy of promotion, nor would he make good if promoted. It seems as though they come in at changing time, place the help and go on about something else, not giving them much attention, kind of letting them do as they please and of course they make bad work. One day one of those very men will be met on the street by a friend who will say: "Hello John, where are you now?" and he will answer: "Oh I'm at such and such a mill, runing the spinning (or carding, as the case may be,) but I don't know how I came to stop here and take this. I ought to be running a mill."

I know a man who is superintendent of a small mill, who was working away as hard as you please one day, when the head man came to him and told him the superintendent was leaving, and to his great surprise said to him: "Can you run the mill?" The man said afterwards that it was just like a bolt from a clear sky; he didn't know what to say, so he told the head man that he had never tried to run a mill but would do the best he could, so he got the job and has been getting along all right for about three years.

This brings me to the point as I see it. The way to get promoted is by knowing how to run a job and then running the job in hand to full capacity. Promotion will come then and come right, and all concerned will be benefitted by it.

If someone who can write, will write something along this line I believe it will go a long way toward helping the mills and the men too. A. H. (N. C.)

C. T. HUGHES, superintendent of weaving at the Hillside Cotton Mills, LaGrange, Ga., was instantly killed recently in an automobile accident near Greenville, S. C.

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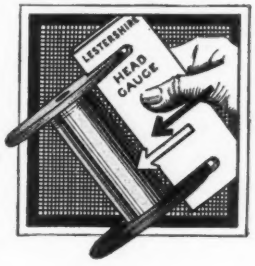

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Shiners in Weaving Rayon.

EDITOR COTTON:

In the December number, "I. M. (Pa.)" asks about shiners. If he will put the rayon under the microscope he will note that the shiner is a flattened section of the yarn.

In spite of promises of some processing material salesmen, there is nothing that can correct this after the flattening has occurred. It is unquestionably due to mishandling of the yarn while wet or damp, and if a skein is examined it will probably be found that the flattened portions appear at opposite sections of the skein. This has always led me to believe that the difficulty has occurred when snapping the yarn on the wooden arm by the winder when shaking it out before putting it on the swift. The shining, of course, is due to the reflection of light from the flattened surface, while the light reflected from the round yarn is dispensed at varying angles of refraction. Operatives must be taught that rayon, when damp, requires more gentle handling than either silk or cotton.

P. N. (PA.)

EDITOR COTTON:

In answer to "I. M. (Pa.)" who reported in the December number his difficulty with shiners in weaving rayon, I will say that I have found some of this trouble is caused in the winding by the operator not straightening the skeins before putting them on the reels, with the result that as the skeins were unwound the rayon would be caught under the other strands and thus stretch the rayon, straightening out the fibers and causing the shiners.

I have also found shiners right on the skeins, and generally when this occurs, some of the fibers will be found to be broken. I cannot say just how this is caused, not having had experience with skein winding, but it is well to inspect the skeins very closely to see if these defects are in the skeins before they are put up on the winder.

Another cause of shiners is knots in the filling. When the filling is being wound on either tube, quill or bobbin, the operator should see that all knots are placed on the shoulder of the wind and not on any part of the taper, because when the knot is on the tapered part of the wind, the filling will catch during the unwinding in the weave, whereas, when the knot is on the shoulder it is not in the way in the shuttle.

Another cause of shiners was the result of using a metal shuttle eye. This eye was replaced with a porcelain eye which allowed the filling to pass easily and thus put less strain on the rayon at this point.

Uneven tension on the shuttle will also cause shiners. The best friction I have found is muskrat fur glued on the inside walls of the shuttles, so that the cop, quill or bobbin lies between and on the fur, thus giving an even tension from start to finish. This also prevents the rayon from ballooning, which causes it to strike the top and bottom edges of the shuttle and thus make shiners. Shuttles should be kept perfectly smooth and polished, using thin shellac, as the smallest burr or splinter will catch the rayon and cause shiners.

L. J. (MASS.)

J. E. BAKER has been made overseer of weaving at the Pilot Division, Consolidated Textile Corporation, Raleigh, N. C. He succeeds J. L. Beaver, who resigned to accept a similar position at the Cascade Mills, Mooresville, N. C.

Drop-Wires at the Slasher.

EDITOR COTTON:

"Mack (Ga.)" very apparently takes issue with the writer regarding certain benefits supposedly derived from the use of drop wires to separate mixed stripes when running in the slasher, thereby keeping these threads straight and true as they go onto the loom-beam. At the same time he enlightens us as to just who originated the idea and first used the scheme.

For brother Macks' edification I would have him know that I "hold no brief" for the drop-wire for the aforesaid purpose. They are in the same class of "makeshifts" as the "flat-bar's" to which he refers, but while a nuisance, the drop-wire will accomplish its purpose, and will keep badly mixed patterns so straight and true that the web-drawer and weaver have no difficulty whatever in handling them; in fact, they work wonders with badly mixed stripes, more especially if there are a number of dark colors jumbled together as in some patterns we have, or where there are different shades of color closely allied and it is difficult to distinguish one from the other.

The results obtained by the use of the drop-wires cannot be duplicated so easily by the "slatting" process, as it was called when we used the flat-bars for this purpose, and was only used on the coarser grades. On the fine grades of yarn not much success seemed to attend any effort in this line. During the period they were in use, they were considered very helpful, and some there were, becoming adept in the handling and adjusting of these bars, who gained a sort of distinction of being experts. They traveled from mill to mill and were usually accorded a fine reception and given a job installing this system by those in authority.

The assertion that a great length of time must be required for inserting the drop-wires in their proper places is quite erroneous. The experienced man will perform the operations quickly and easily. The only reason for their discontinuance in many mills was the question of compensation, the operator having to be paid two or three dollars a week extra.

The drop-wires are not put on each thread as in the weave room but between the different colored threads in the stripes, or between cord threads and single yarn, if the cord is put on the same beam with colors and white yarns.

Therefore, for some warps there may be as few as 30 or 40 drop-wires, some other style might require a couple of hundred, then again there may be certain styles where ten or a dozen will suffice. Incongruous as it may seem, there are few in authority that can seem to estimate the value of a *double comb* for all slashing purposes, and more especially the "fancies." And because the double comb is a spring expansion type it is "passed up." With this style comb in use comes the nearest approach to perfectly straight warps from start to finish.

Some of the largest and best mills in the East used this double toothed comb for years with astonishing success, but within the past few years a prejudice has arisen against the use of spring expansion reeds, and in the case of this reed is not well founded. With a reed of this type, drop-wires, flat-bars and other devices for keeping the threads straight are not needed, of course.

As to when "Mack" first saw drop-wires used, far be it from me to question the fact that he knew of their being

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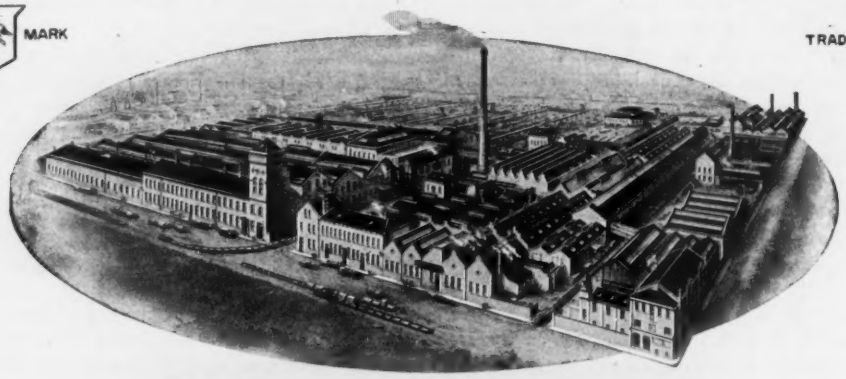

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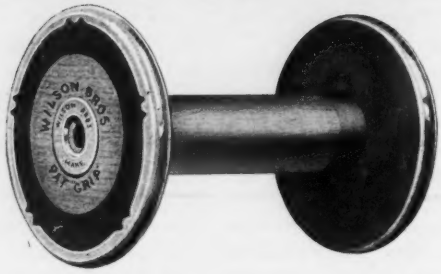

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used forty years ago in Slatersville, R. I. It was my impression that the idea originated in, or about, Lowell, Mass.

Lowell or Slatersville, what does it matter? It is obvious that the originator had a clearly defined purpose in view, and that was, to separate the threads of different colors after they left the "raddle," send them into their proper places and keep them there, running them onto the loom beam exactly as the draft or pattern called for, instead of a jumbled lot of threads. Evidently this man had a knowledge of dressing or taping, because he understood one of the prime requisites of a well prepared warp for weaving.

The "flat-bars" that "Mack" expatiates on and enthuses over, were in use in some few mills in New England (off and on) for awhile about 25 years ago, but were finally thrown into the discard along with the drop-wires and other fancy lease riggings, because they held up production and "slatting" as we called it when using flat-bars, was apt to be the worst offender of the lot.

Now how does one suppose that flat-bars, drop-wires and all the other fancy lease riggings came about, anyway? Just what were they trying to arrive at by the use of this paraphernalia?

Why, they were trying to produce the same quality of work on the slasher as that turned off by the process of taping and other methods of dressing, as it was called.

It so happens that in the factory where the writer first went to work there were 30 Scotch dressing machines, some few tapers and a few of the older types of box slashers for the coarse work, and until able to operate a dresser, his work for a few years was waiting on and helping the men and women dresser-tenders to keep their machines running, fermenting starch, cleaning brushes, emptying the size pans, sewing on covers on the soapstone rolls and twisting in. These are just a few of the duties, well remembered, until proficiency was attained in operating and becoming a dresser tender, later on being transferred to a Scotch taper, where this form of dressing prevailed for the pattern work at that time.

The fundamental knowledge of dressing cotton yarns was acquired, and this knowledge further augmented by years of study, observation and application in many of our New England mills. With all of these years of experience in dressing or slashing, some of which were spent in the largest, and also the biggest money makers in the cotton business, seldom, if ever, was it possible to see slashed warps that could compare with that processed by the taper.

Very true, many mill managers discarded the tape slasher, but I have met mill men who were very sorry they had done that, and we still have some large concerns here in New England that will not tolerate the idea of slashing their goods. These mills are making money by turning out some of the finest fancies to be had in this country. They find they have a lesser amount of seconds by using the taper than if warps were slashed and all troubles left for the weave room to straighten out.

The slashing system for preparing warps for weaving is considered by not a few as more or less a mongrel method, more especially when dealing with fancies. It is very true that within certain limitations we do what we like to call good work today with the slasher, but isn't it productivity we have in mind?

Somewhere there must be an inventive mind working

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✓ trucks,
✓ and hampers
✓ designed for the textile industry

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All are remarkably well constructed for lightness and strength. All are covered with No. 1 Triumph Duck made by Callaway Mills, associated with Valley Mills. Accessories, such as casters, handles, hinges, and eyelets are of high quality and are installed to give lasting and satisfying service.

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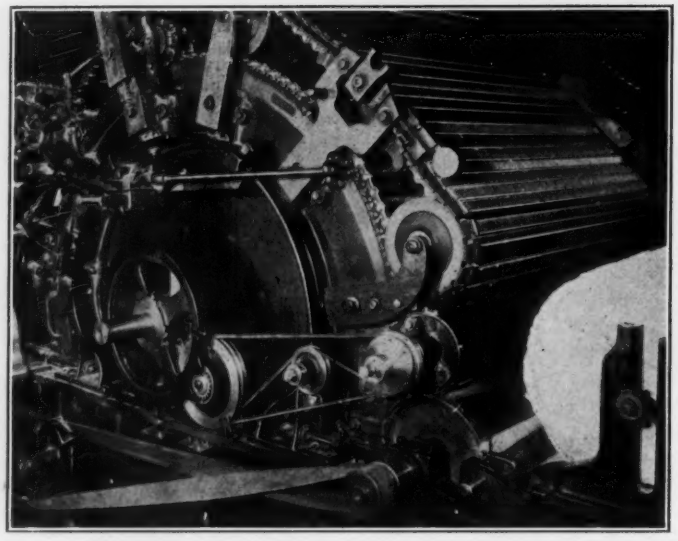

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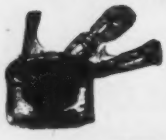
In universal use by thousands of manufacturers and shippers.



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Is Your Cost System Adequate?

An adequate cost system has a double duty to perform. Its first duty must provide the superintendent with records showing the fluctuations in actual costs from period to period in considerable detail.

It must also provide the agent who sells the mill's product with a reliable guide in his efforts to choose the more profitable fabrics. To perform this duty the cost system must maintain accurately the true relation between the costs of different fabrics and indicate clearly the price at which each style becomes profitable, if the mill operates to capacity. The system should be able to provide this information in advance when inquiries are received for suitable new fabrics.

Write for our booklet, "Practical Simplicity in Textile Cost Methods."

RALPH E. LOPER & CO.
Specialists in Textile Cost Service During 15 Years
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out a better system than what we use at present for this tremendously important process. The term "scientific slashing" has already been used by various men connected with the cotton industry, so it can be seen that the germ has already been planted and the need recognized for an unimpeachable product. There can be nothing like scientific slashing under the present method, as much as they desire it. This must come eventually through future development of ideas, radically different from those in use now.

With a long and varied experience in this line throughout New England, it would be possible to dwell at great length on the inefficiency and incomprehensible manner in which this particular process is carried on in many of our mills. In order to qualify this statement considerable space might be necessary in the attempt to convince some who are not fundamentally sound in the principles of dressing or slashing yarns. While this may sound strange, there are certain rules that must be adhered to in obtaining a good product from the slasher, and deviation from these principles, sometimes in a slight degree, will make that vast difference between good work and poor work for the weaver, and so long as the slasher is the best way at present for doing this work, every effort should be made to do it correctly. So often have we seen work somewhat out of the ordinary being manhandled, entirely at odds with the principles of slashing; everything in sight and out of sight blamed for not being able to "work it" and do a good job; time and money wasted and patience worn to a frazzle. Then an "Old Timer" is appealed to. Usually someone with taping experience, or one who has acquired that *certain* knowledge of slashing principles through experience.

In conclusion, and in answer to "Mack's" declaration that he "disputes the fact that a 750 dent comb should be used," and explains (to his satisfaction) the reason a 500 dent comb would be preferable, this is a matter of relativity. If "Mack" were here in the fine goods center and slashing fancy handkerchiefs with nearly 5000 ends in the warp, including *whites, colors* and cord yarn, and in some there are cords galore, intermixed with the colors and white yarn, all going on the loom beams, we believe he would be very glad to have a 700 or 750 dent comb to handle this style of goods. Of course we must remember there is always the "old school" of slasherman we have to contend with, the one who believes that it doesn't make any difference how many threads there are in each dent in the raddle. The fewer the dents the more ends we can put in each dent, therefore, the less trouble in slashing.

None of us are infallible. New ideas are at times hard to accept. We believe "Mack" would do the same as the most of us do here in the fancy goods section if he were here handling fancies where skillfulness is blended with ingenuity in producing such beautiful and intricate patterns for the world at large. S. T. H. (MASS.)

Information on Reliance Motors.

Reliance Electric & Engineering Co., Ivanhoe Road, Cleveland, Ohio, manufacturers of direct and alternating current electric motors, have recently issued Bulletin No. 202 on Type T heavy duty reliance motors, for direct current, fitted with ball and roller bearings. The application and purposes of the anti-friction bearings are described fully.

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90% of the Slag Jobs are Serviced on Time
Scan the roster of Slag highways (almost 1500 miles of hard surface roads)—talk with the men who used
"ENSLEY" & "ALA CITY"
BASIC SLAG
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in those roads and you will find that on 90% of the jobs the "shipping service" from Slag Headquarters was adequate and always on time. Wouldn't that kind of service be worth real money to you on YOUR jobs.
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Only efficient tapes can create economy—tapes that possess those inherent qualities of strength and long life. Barber Spinning and Twisting Tapes are the most economical on the market—evidenced by the number and character of the mills using them exclusively.
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World leaders in the production of spinning and twisting tapes for all kinds of cotton machinery.
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Aerolux Type 5's permit full use of Ventilators—yet occupy a minimum of room space.

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Smoked glasses may help.

But General Electric, AC Spark Plug, Continental Motors, Westinghouse, Remington, and a host of others have learned that the better way to eliminate "sun grief" with its trail of headaches, eye strain, spoilage, and discontent is to install Aerolux Industrial Window Shades.

Their new aluminized finish reflects over 90% of the sun's heat-rays back through the windows, keeping interiors 10 to 15 degrees cooler than any other shades—and assuring better distribution of ideal light. Aluminized finish retains its lustre permanently—is not affected by fumes which darken other finishes. Offers little foothold for dust—is easily cleaned.

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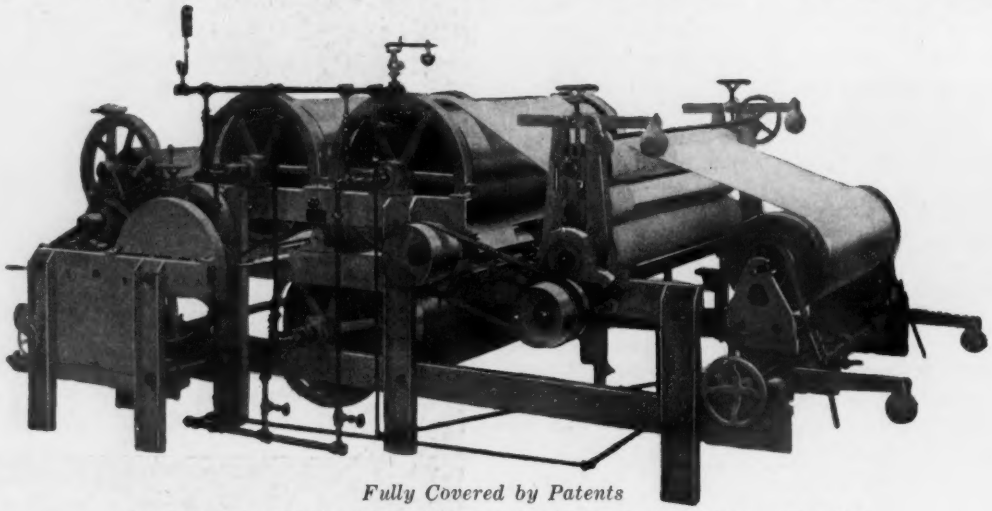
WINDOW SHADES

THE JOHNSON WARP-SIZING MACHINE



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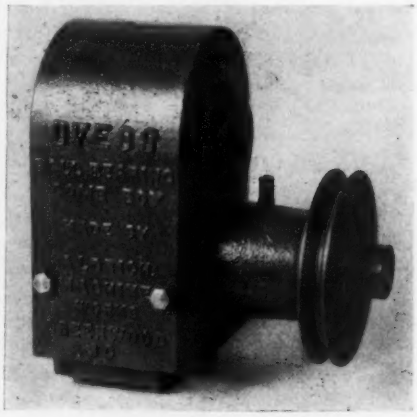
New Ball Bearing Comb Box for Cards.

At the Southern Textile Exposition in 1926 there was exhibited a model of a ball bearing comb box for cotton cards, and a description of this box, together with illustrations, was contained in a letter on page 140 of the December 1926 issue of COTTON, signed "E.C.(Ga.)"

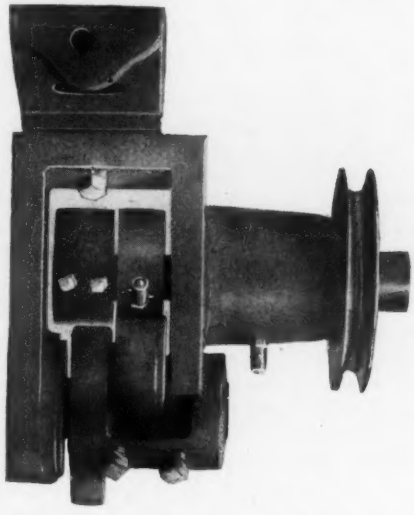
At that time it was stated that arrangements had been made with the Aldrich Machine Works, of Greenwood, S. C., to manufacture and market this new box, and it may interest the readers of COTTON to know that it has now



This shows the Dyess ball bearing comb box fully assembled, with cover on. It will operate as well open, however, the only purpose of the cover being to keep out dust and fingers.

been placed on the market after being re-designed and adapted to quantity production. The box shown at the Exposition was the inventor's original model, illustrating the mechanical principle of the box, but not, the manufacturers state, suited to ready manufacture or assembly.

The new design, according to the manufacturers, has been carefully worked out for ease of manufacture and



Front view of box, showing details of mechanism. The upper yoke which oscillates the comb is cast with a lug of iron to counterbalance the weight of the connecting-rod The main shaft is balanced by means of the piece of steel with the two set screws in it. This balancing is very carefully worked out, and the box operates with practically no vibration, it is pointed out.

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Try a GARLAND Standard Grade LOOM HARNESS

No better looking, better weaving or better weaving loom harnesses can be made than those we are turning out. The best materials, great care in manufacturing and rigid inspection from the knitting to the finished harness are bound to produce harnesses of superior quality.

TRADE MARK

GARLAND MFG. CO.
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Winding, Warping and Special Machinery for Rayon

Steel frame construction and patented rigid traverse motion.
Write for circular No. 10

Type BO. Skein Winder for Rayon, Silk and Mercerised Yarn.

THE SIPP MACHINE COMPANY
PATERSON, N. J.
Southern Representative:
GIBBONS G. SLAUGHTER, Johnston Bldg., Charlotte, N. C.

assembly, and great simplicity. These boxes were placed in operation for months before being approved, and it is pointed out that they represent a quiet, smooth, almost vibrationless comb box operation. The accompanying illustrations show the working parts of the box. The reciprocating action is obtained by means of an eccentric and crank, instead of by the usual fork mechanism employed in ordinary comb boxes. All moving parts are mounted on ball bearings. Lubrication is by means of Alemite fittings with a pressure gun. All boxes are both right and left hand, it being necessary only to turn them on their bases. They will operate as well open as closed, it is stated.

Among the salient features pointed out by the manufacturers are: Cleanliness, since the bearings are greased rather than oiled. They require greasing only three or four times a year, it is stated, and never require taking down and boiling in caustic or soaking in gasoline. The mounting of all bearings with a press fit insures quiet running with no lost motion. The bearings are all heavy, it is pointed out and require little replacement. All parts are interchangeable, however, so that replacement, necessitated by neglect of lubrication or other cause may be made readily. Any standard make of ball bearing can be used.

Experiment on One Frame.

EDITOR COTTON:

It is no uncommon occurence, when a man tries out something good, or hears of someone else who has put over something new, for him to put it in print in the Discussion Department so that others may derive benefit from his find. Working on these same principals, but reversing the usual procedure, I want to describe an experiment that has proven to be a flat failure. Just a word of warning to anyone who might be contemplating something of the sort.

In a mill that I happen to know about they have several speeders with a traverse one inch longer than the speeders making up the balance of the equipment. This, of course, necessitates using two different sized bobbins. For some time, they had been short of the larger size, and consequently there was a tie-up at intervals. The boss carder decided to change over the larger frames so that they would runs the same bobbins as the smaller frames. This, he evidently figured, would standardize things somewhat and he wouldn't have to order any new bobbins of the larger size.

To accomplish his object he had the shop make enough cast iron collars to accommodate the required number of spindles. These collars were one inch in height and of a diameter to coincide with the diameter of the bobbin gears. The collars were slipped over the spindles onto the bobbin gears, being driven by the pin in the bobbin gear. Then of course, the bobbin rested on these colars which were pinned to drive the bobbin.

These frames have the American builder and new jaws had to be bought to accomodate the shorter traverse. This change, including changing over the frames, must have cost several dollars per speeder.

This man did not try the experiment on one speeder, but ordered up the whole outfit. Just a case of being too sure of his ability. Now they can't keep a proper tension gear on those frames. Even under the most favorable conditions the tension gear must be changed at least twice each doff, and the tender has to take up slack frequently in the bargain.

The extra friction of that one more inch of bearing on each spindle is a strain on the cone belt, so that slippage occurs throughout the entire set. Also, after about three months running, the bobbin shaft gears had worn to a knife edge.

It is impossible to keep the collars oiled and it is quite a common sight to see a dozen or more bobbin gears jumping merrily up and down. It is almost unnecessary to say that they have a very hard time to get speeder tenders to stay on those frames. Production has dropped off from seven to five and less hanks per day.

There is a moral to this story.

J. N. (MASS.)

A Remedy for Slipping Belts.

EDITOR COTTON:

I read a letter in January COTTON in which some good advice was given in regard to slipping belts. It reminded me of six years in a factory where I was once located. I found the importance of keeping belts *clean;* also reasonably pliable. I also found that yellow vaseline thoroughly rubbed into both sides of a *clean* leather belt was a good treatment (if not the best) to make belts *pull* without slipping. The chief virtue lies in the rubbing-in process. The vaseline is used sparingly on a clean, warm, belt and *thoroughly* rubbed in. Vaseline not only is cheaper than tallow, but is much easier to apply, and getting on a little too much, accidentally, does not leave the belt surface greasy or sticky, as does tallow. Vaseline may be kept indefinitely without becoming rancid. It is better to experiment with a small, and more or less unimportant, belt to find out just how much vaseline to use, as it depends entirely on the condition of the belt. Vaseline evaporates a little faster than tallow, or similar substances, requiring about six applications to five applications of tallow.

This little experience may be of value to some reader who has never experimented along this line.

K. H. (FLA.)

New Plant for Seydel-Woolley Company.

The Seydel-Woolley Company, manufacturers of warp sizings and other textile chemicals, have recently moved into a modern new plant, located on the L. & N. belt line, near Bankhead Highway, in Atlanta, Ga. Since its organization several years ago, the company has occupied leased quarters in another part of the city, but the increase in the volume of business necessitated larger accommodations, and it was decided to erect a new building especially designed for the needs of the company. The plant is located on a five-acre tract acquired by the company, and consists of an office and laboratory building, and a fireproof concrete and brick manufacturing building. The equipment includes the latest machinery and devices for insuring the production of chemicals under accurate control, it is pointed out. Paul Seydel, president of the company, is a graduate of the University of Brussels, Belgium, and has been connected with textile chemistry for years in this country and abroad. Vassar Woolley, Jr., vice-president, is a graduate of the Georgia School of Technology. Vassar Woolley, Sr., is secretary-treasurer.

Knitting Section

THE STYLE--FANCY EFFECTS

The MACHINE

Spiral Floating Striping
Built into Models HH-K-B

THE popularity of Fancy Effects is due in part to expert workmanship. It is contributed to by this new machine that makes patterns which heretofore could only be produced on hand or semi-automatic machines. Now they can be duplicated, or even enlarged upon with the floating striping and yarn changing mechanisms developed in this equipment.

Machines can be equipped with as many as six yarn changing fingers. This permits of a great variety of colors under the control of the pattern mechanism. The horizontal striping mechanism can be arranged to control either the facing yarn or the backing yarn.

Attachments for producing the fancy effects can be easily thrown out of action and plain stockings produced, as with any HH, K or B machine.

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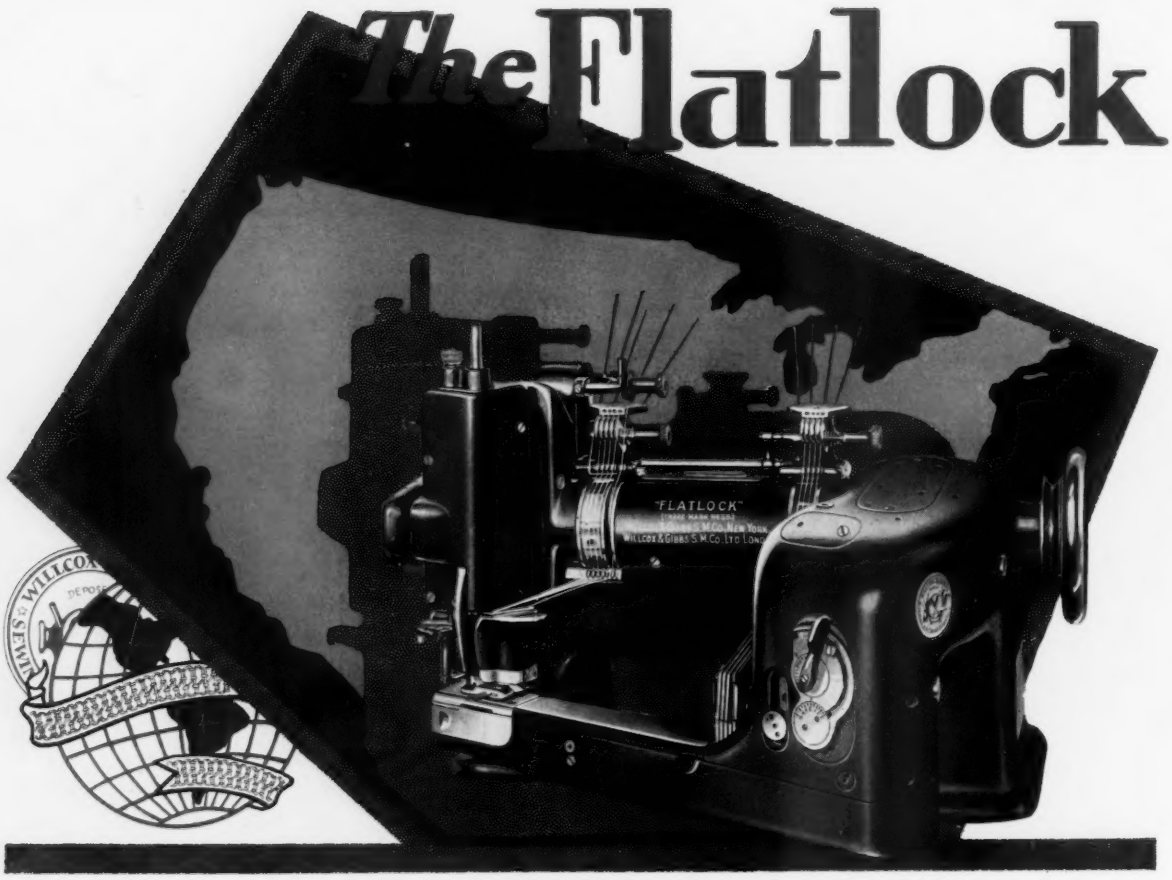
The Flatlock



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Rayon production in America has attained the highest style excellence. This premier position is partly based on the exquisite finish of American products.

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So manufacturers–both here and abroad–are using the Flatlock Seam to make Rayon production even more popular with buyers.

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Write our Home Office for samples made on the Flatlock, or submit your own fabrics for sample purposes.

Hosiery Cost and Production Control System

Outlining the Installation and the Operation of Such a System, Its Convenience and Advantages

BY HAROLD E. PARKER, TEXTILE ECONOMIST.

PART TWO.

After the discussion of the necessity for a system, and the advantages to be gained from the proper operation of such a method, as outlined in Part One, we will now pass into a description of the installation and mode of operation.

Installation and Operation.

Naturally, when the order is received it is necessary that acknowledgment be made, and practically every mill has some form upon which this is done. However, the form shown in Fig. 1 is offered as a suggestion, since its use provides a simple and convenient arrangement. The order number is placed on it, along with shipping instructions, directions as to samples, the type of bands, labels, transfers, riders, box tops, etc. Then the specifications as to style, color, size, and distribution, together with the prices of each style, are listed. This is made in duplicate, one copy going to the mill production office for acceptance, another going to the customer. A similar form is made in duplicate at the mill, one being filed in a vertical file, in numerical order for reference when the order has been completed and shipped, for billing and invoicing.

When the order is ready to be put through the mill,

ORDER NO. 1001

DATE 2/10 1927 SOLD BY

SHIP TO Ely + Walker STREET New Orleans CITY La STATE

CHARGE TO Same DRAW B/L IN NAME

ROUTE N.O.P.& D. VIA Sou. TERMS 2 % 30 F.O.B. Mill

MARK BILLS: DEPT. X ORDER NO. 639 SEND CUSTOMER 2 BILLS

SAMPLES: 6 sets 1/2 each color

PKG. ORDERED 2/16/27 BANDS Pickwick LABELS Pickwick TRFS Pickwick RIDERS Pickwick

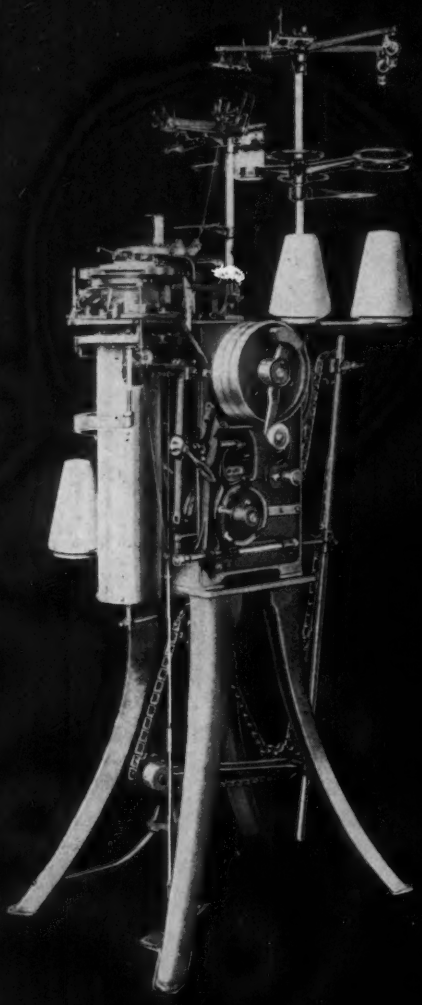
BOX TOPS 1/2 DOZ red BOXES

SHIPED 3/15/27 WT. 86 PACKED BY L. M. C.

THIS ORDER IS TAKEN SUBJECT TO MILL'S ACCEPTANCE AND TERMS

CASE NO.	STYLE	COLOR	AS STYLE	TOTAL DOZ.	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½	12	DEL.	PRICE	EXTENSION
	120	gray	109	40									10	10	10	10			1.85	
		beige	116	40									10	10	10	10				

FIG. 1



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the
Wildman
idea

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Norristown, Pa.

We have issued a new edition of the complete and informative book, "The Science of Knitting." Price, $2.00.

WILDMAN
SPRING NEEDLE KNITTER

OFFICE

GOODS IN PROCESS

STYLE 60 BATCH NO. 1

DATE ISSUED 2-28-27

DATE FILLED

	Backing red gray					Backing gold gray			
order	10	10½	11	11½		10	10½	11	11½
1001	5	5	5	5		5	5	5	5
1002	10	20	20	10		5	10	10	5
1003	5	15	25	15		5	15	25	15
1004	25	25	10				0		
1005		0				5	15	25	5
1007	5	15	10	5		5	10	15	5
	50	80	70	45					
	Beige								
order	10	10½	11	11½		10	10½	11	11½

	Backing red gray				Backing gold gray			
	10	10½	11	11½	10	10½	11	11½
actual	100	160	140	90				
orange	60		20	70				
Total	160	160	160	160				
used	②	②	②	②				
	Beige							
order	10	10½	11	11½	10	10½	11	11½

FIG. 2

KNITTING ROOM

GOODS IN PROCESS

STYLE 60 BATCH NO.

DATE ISSUED

DATE FILLED

red											gold										
10	10	10				11	11	11	11	11	10	10	10				11	11	11	11	11
100	100	100				100	100	100	100	100	100	100	100				100	100	100	100	100

FIG. 3

DYE HOUSE

GOODS IN PROCESS

STYLE 60 BATCH NO.

DATE ISSUED

DATE FILLED

red gray											gold gray										
10	10	10				11	11	11	11	11	10	10	10				11	11	11	11	11
100						100	100	100	100	100	100										

FIG. 4

BOARDING ROOM

GOODS IN PROCESS

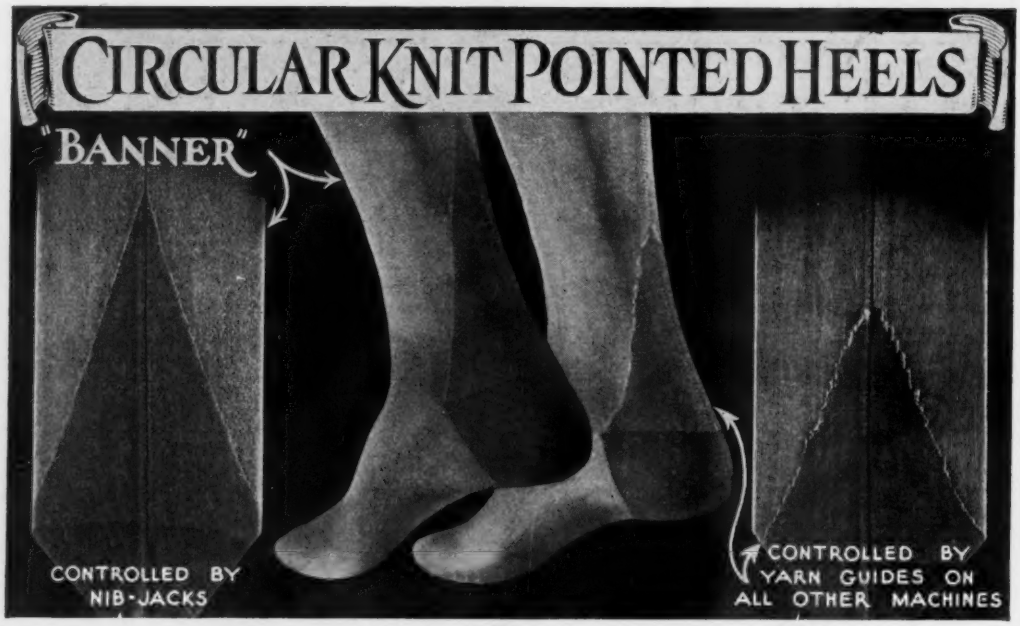
STYLE 60 BATCH NO.

DATE ISSUED

DATE FILLED

red gray												gold gray										
10	10	10				11	11	11		11½	11½	10	10	10				11	11	11		11½	11½
						100	100	100		100	100	100						100	100			100	
										100													

FIG. 5



Are you absolutely assured of perfectly tapered reinforced pointed Heels, with your present equipment?

There is no assurance of perfect work unless there is positive control of each needle.

The "BANNER" Nib-Jack Pointed Heel machine is the only circular knit machine that absolutely controls each needle independently. By their use you are absolutely free from any infringement, confident of better work, less seconds, greater production and more profits.

A glance at the above illustration will show you the marked contrast between the Pointed Heels made on "BANNER" Nib-Jack machines and those of all other makes using other methods.

HEMPHILL COMPANY

MAIN OFFICE AND FACTORY

PAWTUCKET RHODE ISLAND

New York Sales and Show Rooms
93 Worth Street, New York

Southern Office
James Bldg., Chattanooga, Tenn.

Philadelphia Sales and Show Rooms
Colonial Trust Bldg., 13th and Market Sts.

the guide cards shown by sections in Fig. 2, Fig. 3, Fig. 4, and Fig. 5, are issued to the various departments indicated. These cards are 9 by 11¾ inches in size. The production schedule for each department is outlined. One card, it will be noticed, goes to the office, one to the knitting department, one to the dyehouse, and one to the boarding room. The office card is used to check the production flow through the mill, and to utilize in arranging for seconds, overages, re-runs, etc.

The cards going to the manufacturing departments are filled in with the number of dozens of each size of each style indicated, on the basis of the usual lot amount put through the mill. In the case of the mill in illustration, we shall say this is 100 dozen. The foreman of each department keeps his card, and as a lot of each style and size is completed in his room, he simply draws a ring around that amount on the card, indicating that lot is completed. These cards afford an immediate check on the current production on any order of any style. The cards are divided into duplicate sections, for the several colors in process.

The next form to be considered will be the Lot Ticket, both sides of which are shown in Fig. 6. This is attached to each lot as it is knitted. The knitter ties up the hose in dozens as they come off of the knitting machines and drops them into bags. The firsts go in one bag and the seconds in another. As soon as the bag contains 100 dozens each, he attaches a tag and determines the lot number from the lot chart, in this case S4170, and records it on the ticket, together with the date, 3/14/27, his number, 4, the style number, 500, the size number, 10, and his dozens, 100.

The foreman is called and he checks the knitter's work and figures. The bag now passes to the first inspector, who inspects the merchandise and fills in her number, 14, the dozens of firsts, 90—6/24, dozens seconds, 8—20/24, dozens thirds, 22/24, and the total dozens, 100. The inspector makes note of the imperfects and shortages and sends back to the knitter the imperfect goods where they are put into the bag containing seconds and an equal amount of perfect goods are given in exchange. The lot now contains full count.

The bag is delivered to the looper, who loops the hose, fills in her number, 6, and her dozens, 100.

The lot then goes to the second inspector who inspects the goods, fills in her number, 12, dozens firsts, 95—23/24, dozens seconds, 3, dozens thirds, 1—1/24, and the total dozens, 100.

The second inspector calls on the looper to make good any imperfects or discrepancies. The looper, in turn, calls on the first inspector, who, in turn, goes back to the knitter, thereby making each operator responsible for the correctness of his count and work.

The lot is now passed to the dyehouse, where the goods are dyed and the dyer's dozens, 100, are inserted on the ticket.

DATE 3-14 1927

LOT NO S4170 KNITTER'S NO 4

STYLE 500 BACKING

SIZE 10 KNITTER'S DOZ 100

FIRST INSPECTOR AND TURNER'S NO. 14
DOZ 1STS 90 6 |24
DOZ 2NDS 8 20 |24
DOZ 3RDS 0 22 |24

FIRST INSPECTOR'S TOTAL DOZ 100 |24

LOOPER'S NO 6 LOOPER'S DOZ 100

SECOND INSPECTOR'S NO. 12
DOZ 1STS 95 23 |24
DOZ 2NDS 3 |24
DOZ 3RDS 1 1 |24

SECOND INSPECTOR'S TOTAL DOZ 100 0 |24

MACHINE 2NDS DOZ 8 20 |24

LOOPER 2NDS DOZ 3 23 |24

TOTAL 2NDS DOZ 12 19 |24

DYER'S DOZ 100

BOARDER'S NO 4 BOARDER'S DOZ 100

YANKER'S NO 1 YANKER'S DOZ 100

PICK OUT'S DOZ 2

FRONT SIDE

FIRSTS 90 DOZ 2NDS 6 DOZ 3RDS 0 DOZ
HOLES 2 DOZ REBOARDS 1 DOZ REDYES 1 DOZ
TOTAL 100

PAIRER	19			
STAMPER	2			
TAGGER	3			
FOLDER	16			
BOXER	21			
STYLE	11			
COLOR	Blk			
SIZE	10			
ORDER NO	H4761	407	H4800	M307
DOZEN	30	20	15	25
STAMP	Gold Fox	Blue Rose	Gold Black Bird	plain
T STICK	Fox	Rose	Black Bird	none
RIDER	Fox	Rose	Black Bird	Eagle
BAND	Fox	Rose	Black Bird	plain
BOX	1/2 doz Dark Red	D. Blk.	Lt. D. yellow	stake
LABEL	Fox	Rose	Black Bird	Plain
DATE	3-10-27			

BACK SIDE

FIG. 6

MULTI-DESIGN HALF HOSE

As knit on Fidelity's Multi-Design Machine, 72 colors vertical are possible in men's true-rib half hose. . . . . Better retail merchants are asking for Multi-Design patterns. . . . . Better manufacturers have them.

FIDELITY MACHINE CO.
3908-18 Frankford Avenue
Philadelphia

THE FIDELITY UNIVERSAL RIBBER

Illustrating one of the new 1928 Multi-Design half hose patterns with the tailored foot.

FIDELITY

Then the lot goes to the boarder, where it is boarded. The boarder writes on the ticket his number, 4, his dozens, 100, and the quantity of pickouts found, 2.

If this class of goods requires yanking, the same is done, and the yanker fills in his number, 1, and his dozens, 100.

The lot is now ready for the finishing room, where the reverse side of the ticket, also shown, is filled in.

The lot is received by the pairer, who pairs the merchandise, fills in on the ticket her number, 19, the dozens firsts, 90, dozens holes, 2, dozens seconds, 6, dozens thirds, 0, dozens re-boards, 1, dozens re-dyes, 1, and the total dozens, 100, and puts the imperfects in their respective accumulative bins.

The person in charge of setting up the orders now takes the ticket and refers to his orders in process which are to use a portion of this lot. He then fills in the order numbers, H4761, 407, H4800, and M307, number of dozens called for on each order, 30, 20, 15, and 25, kind of stamping, gold "Fox," blue "Rose," gold "Black Bird" and plain; toe stickers, "Fox," "Rose," "Black Bird" and none; rider tickets, "Fox," "Rose," "Black Bird" and "Eagle"; bands, "Fox," "Rose," "Black Bird," and plain; boxes, half dozens dark red, one dozens black, half dozens yellow; and stock; and labels "Fox," "Rose," "Black Bird," and plain —as called for on each order calling for a portion of this lot.

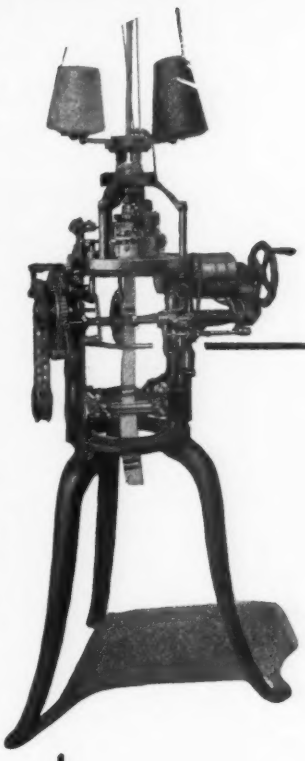
The lot is given to the stamper who stamps it, fills in her number, 2, and passes the merchandise to the tagger who attaches the rider tickets and inserts her number, 3.

The lot is next received by the folder, who folds it and fills in her number, 16. The merchandise is boxed and the boxer's number, 21, is inserted both on the ticket and on the bottom of each box.

The customer, when making a complaint in regard to the merchandise, is required to return the imperfect goods in the original boxes, thereby making it possible to trace the goods back through all of the operations and departments, locating the guilty party to whom the imperfect work is due. Thus, by being able to check up accurately on every pair of hose that goes out, the operators are made more careful and naturally the standard of merchandise is raised. All workmen are given numbers, for it is much easier and quicker to insert their numbers on the ticket than it would be to write their names.

The next subject to be taken up will be that of yarn stock, which will lead logically to the departmental reports.

Industrial Rayon Corporation has taken over the entire business and assets of its subsidiaries, Industrial Fibre Corporation of America, and The Industrial Fibre Co., Inc., assuming all of their obligations. The business is now known as Industrial Rayon Corporation with general offices and plant at Cleveland, Ohio. Coincident with this announcement is that of a new and improved yarn, "Industrial Premier". This yarn was discussed at the annual sales meeting recently. Hiram S. Rivitz, president, pointed out that this yarn is greatly enhanced in running qualities, with more body, more strength, and greater elasticity. F. C. Niederhauser, vice president, conducted the technical discussion, bringing to light several important and interesting features. A. A. Murphy, sales manager, discussed sales conditions, etc.



Ribbers
Body Machines
Hosiery Machines
Necktie Machines

Circular Machines for Every Purpose

We will be glad to furnish information of our complete line.

THE world-wide reputation of "Brinton" is not based on one specialty alone but upon a complete line of machines for all purposes—hosiery, ribbed tops for infants, children and men, underwear, toques, jersey cloth, sweaters and all the various uses to which circular knitting machines are adaptable.

H. BRINTON COMPANY
3700 Kensington Avenue, Philadelphia

BRINTON — CIRCULAR KNITTING MACHINES

FOREIGN AGENTS

Great Britain and the Continent: Wildt & Co., Ltd., Leicester, Eng.

Australia: J. H. Butter & Co., Sydney, Melbourne.

South America: M. Buchsbaum, Calle Alsina 1814, Buenos Aires, Argentine Republic.

China and Japan: Elbrook, Inc., 50 Peking Road, Shanghai, China.

Care and Upkeep of Machinery in a Full-Fashioned Hosiery Mill

Regular Inspection of the Machines and Very Thorough Oiling and Cleaning Form the Basis for Long and Satisfactory Service

By C. H. BAXTER.

A question very often debated by owners and executives of full-fashioned hosiery mills is, "What is the life of a full-fashioned hosiery machine?" In some cases, men will say ten years, fifteen years, or twenty years, but as a rule, the man who knows will say, that it depends upon the care and upkeep of the machine. I believe this to be true, as I have visited many plants and in some of them, I have found that through neglect, the machines were already in bad shape, although only a few years old. When one considers what a large amount of money is required to fully equip a full-fashioned hosiery mill, it does seem a shame that the machinery should be neglected.

A full-fashioned hosiery machine is a very delicate piece of mechanism and unless a systematic method of inspection, care, and upkeep is worked out, the machine will soon become in such shape that it is ready for the junk pile. This also applies to other machinery, such as winding machines, seaming machines and looping machines.

In writing this article, it is my desire to point out to manufacturers or superintendents the importance of taking care of all machinery and by doing so add to the average life of the machines.

Let us take the cone winding machines first. It is surprising how little attention is paid to these machines. Fortunately the modern winding machine is constructed so as to require very little care but even this little care is usually neglected.

The main thing on coning machines, as well as any other machines is that they are always well oiled. On some makes of machines, the system of oiling is the reservoir system and complete oiling should be done at least every two months. The speeds that most makes of winding machines are operated at, require that they must always be well oiled. A card system should be installed, showing just when the machines were oiled last and someone in charge should see that this is not neglected. Oiling saves the wear and replacement of parts, as well as having evenly wound cones at all times.

Another very important thing in connection with care and upkeep of winding machines is that a weekly inspection is made of all wires and porcelain parts upon which the threads run. The causes of many so-called "second quality" hosiery is through split ends in the silk and many of them are caused by nicks in the wires and porcelains on the winding machines. A weekly inspection of these items should be insisted upon, as the old saying of "An ounce of prevention is worth a pound of cure", can be applied right here; as inspecting and replacing any wires or porcelains that show signs of small nicks or cuts will prevent split ends in yarns and better product and less seconds will be the result.

Now let us take the full-fashioned hosiery machine, the most expensive and important machine in connection with the manufacturing of full-fashioned hosiery.

Again I must impress the importance of oiling these machines. In the many years I have spent in full-fashioned hosiery work, I am surprised to find that so few knitters pay any real attention to the oiling of their machines. In most mills the oiling is done each Monday morning and I know it to be a fact that in most cases the knitter spends about five minutes in oiling his machine. No full-fashioned hosiery machine can be properly oiled in such a short period of time. Many breakdowns and machines out of adjustment can be traced to lack of oil and each breakdown or smash lessens the life of a machine.

In order to know that all machines are oiled properly, a weekly inspection should be made of the machine, to see that all bearings, rollers and cams are properly oiled and that none of these are bound because of lack of oil. One should insist that the person in charge of the knitting department makes such an inspection and this will save many breakdowns and add to the life of the machines.

Another thing, that is often neglected, is that a thorough cleaning of the machine is done each week. Any mill manager who neglects to have the machines thoroughly cleaned each week, will soon find that the machines are showing signs of wear, as there is nothing that will wear out machines quicker than dirt and grit. Many mills employ men who do nothing else but clean machines and believe it pays them to employ such men. If such men are not employed for this purpose; be sure to insist that the knitters clean their machines each week and see that an inspection is made for the purpose of making sure that the cleaning has been done thoroughly. For the purpose of cleaning, it is best to allow one and one-half hours for this work and my method or system has been to have the knitter report to the foreman of the knitting department when he is through with the cleaning of his machine; and the foreman then inspects the machine and will either okeh the machine as being clean or else point out the parts that are not cleaned as thoroughly as they should be, and insist that the knitter clean them at once.

In order to obtain good fabric from full-fashioned hosiery machines, it is necessary that, at all times, the sinkers and dividers in the sinker heads move freely. In the making of hosiery in the gum state, the gum and oils used in connection with the treatment of the silk, will eventually clog up the sinker head slots and this results in the sinkers and dividers sticking somewhat. If this clogged up condition continues, it will eventually wear out the slots and will result in poor fabric being made on the machines.

The dirt in the sinker heads should be cleaned out at least every two months and the following method is the one I use:

I find that gasoline will cut this dirt better than any other oils or chemicals and does not injure the sinker heads

AS "Lithographed by Kaumagraph"

Lithographed by Kaumagraph

A few short years ago, a well-established concern came to Kaumagraph. They had a new unusual line of hosiery. To Kaumagraph their advertising manager came for help in originating and executing an unusual package.

Together they worked out a striking design. It was the now famous Ruby Ring package.

Within five years Ruby Ring has become one of the largest selling brands. The package, says the company, has been an important contributing factor to this success.

It has been Kaumagraph's privilege not only to help originate and execute the Ruby Ring design, but to this day the Ruby Ring package and packing are "lithographed by Kaumagraph"—ample testimony of Kaumagraph's unswerving quality *and service*

Are your packages "lithographed by Kaumagraph?" We Shall be glad to discuss the matter with you

KAUMAGRAPH COMPANY
Kaumagraph Building

350-356 WEST 31st STREET
NEW YORK, N.Y.

Lithographed by Kaumagraph!

or sinkers in any way. Pour gasoline in back of the sinker heads and then run the machine idle or without having any fabric on the machine. It is best to cover the needles with papers folded over them as when the dirt in the sinker heads becomes loose, it flies out and by covering the needles, it saves the trouble of picking out the dirt on the needles and the danger of many broken needles is eliminated. Keep pouring gasoline into the heads until no more dirt comes out of the heads. Then set the machine so that the sinkers and dividers are all forward in front of the head. One will find considerable dirt in the sinkers and the best method to use for getting this dirt out, is to use a transfer bar and scrape out the dirt that has accumulated between the sinkers. As soon as this is done, use light machine oil and pour this into the sinker heads in the same manner as when gasoline was poured into the heads. Run the machine again until the oil has worked through the slots. After the heads are thoroughly oiled, start making fabric, using cotton instead of silk and by doing this, the fabric will catch any additional dirt, which might still be coming out of the sinker heads.

The cleaning out of sinker heads is very important, if one wants to increase the life of a knitting machine and by doing this regularly, it means that at all times, good clear fabric will be made and the percentage of "seconds" will be less.

Needles out of alignment is another thing, which will decrease the life of a machine. With needles out of alignment, good fabric cannot be obtained and a great deal of trouble is created when this condition exists. Straightening of needles and keeping them straight is strictly the knitter's job and any one having in their employ a knitter who is careless or neglectful in this work, should take the necessary steps at once to have this condition improved.

The care and upkeep of seaming and looping machines is very little if the matter of oiling is watched carefully. Seaming machines, especially, require plenty of oil, as these little machines, operate at about 2600 revolutions per minute and at that speed they must always be well oiled; otherwise wear and tear will result.

As soon as any parts on either seaming or looping machines show any signs of wear, replace them at once and by doing this, it will add to the life of the machines.

In connection with the care and upkeep of looping machines, the one thing that sometimes will ruin a looping machine quickly, is the replacing of broken points.

On the American makes of looping machines, the points are hammered into the brass in the point dial and when taking out broken points and replacing them, care must be exercised to see that the slot in the brass is not injured. The manufacturers of looping machines make and sell special tools for this work and one should always use these tools only for the replacing of broken points.

In the care and upkeep of machinery used for the making of full-fashioned hosiery, I can only try to impress upon those interested the necessity of a systematic inspection at all times; and insisting that oiling and cleaning be done, not only often but thoroughly. One cannot rely upon the operators to do this work, as it should be done, without being watched or checked and the result is, that if a systematic inspection is not made, the machines will soon show signs of wear, which results in an expense of replacement of parts and making poor hosiery and also results in an increase of "seconds". So I can only sum up this article that the life of the full-fashioned hosiery machine depends entirely upon those who are in charge of operating the mill and the mills who watch and inspect their machinery and equipment regularly are the ones, who get the most out of their machines over a longer period of time.

The A B C of Dyeing.

(*Continued from page* 515.)

should be dyed as fast as possible to washing and wearing, and especially in ladies hose, of which so much is seen on the wearer, the color should not fade at the first few washings or the brand will suffer.

After stripping, washing, and whizzing the hosiery should be untangled, separated and put in suitable net bags as for ordinary dyeing .

The usual way of dyeing with the respective formula may be used for stripped as well as for new goods, but greater care should be exercised. The fibers are now in a state that will not stand much abuse. The action of the stripping chemicals has affected the nature of the fibers more or less, and may necessitate a little change in the original formula for the shade wanted. Boiling should be avoided altogether. The amount of sulphonated oil should be increased as it retards the absorption of the dyestuffs by both the vegetable and the animal fibers. Salt should be added slowly and the acetic acid should be reduced, if used at all. Dyeing at 160 degrees F., or at most 170 degrees F., if the proper precautions are observed should produce good work in any redyed shade with a good exhaustion of the bath. Any addition to correct the shade on the cotton after the bath is exhausted should be made in a fresh bath, adding the salt ten or fifteen minutes after the dyestuff with the bath at 120 degrees to 140 degrees F. To protect the silk from this addition of cotton dyestuff 1 per cent of Phosphate of Soda should be added, and if the silk also needs a touching up any of the acid colors can be added even in the presence of the phosphate or in the last and finishing bath. When the hosiery is dyed to a good match, it is washed and finished in the usual way.

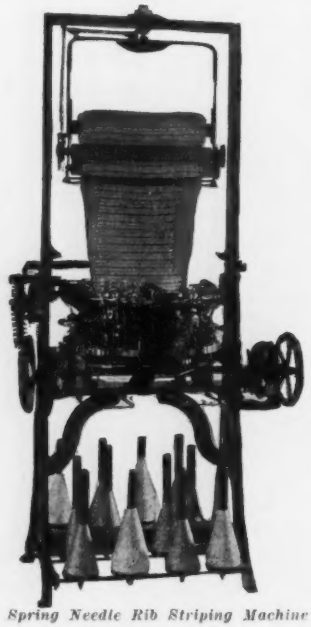
Recently I heard a dyer advising to finish hosiery straight from the dyeing bath into the finishing bath, claiming that any salt carried over into the finishing bath would be beneficial in preventing the dyeing from bleeding. I believe that to be a wrong theory. In my opinion any trace of dyeing not absorbed by the goods should be washed out, and if any salt is deemed advisable to prevent further bleeding, it can be added in the finishing bath, but it will be at the expense of the luster and the feel of the finished product.

Promotions in Philadelphia Quartz Co.

J. Passmore Elkinton has been appointed sales director of the Philadelphia Quartz Company, 121 South Third Street, Philadelphia, Pa., manufacturers of silicate of soda, etc. Edwin A. Russell has been made sales manager, and Carl F. Woolcott field assistant sales manager. Announcement of these appointments was made by William T. Elkinton, president, at the annual get-together and dinner of the company recently, at which more than 100 people were present.

By Past Performance—

this machinery has won its present world-wide approval



Spring Needle Rib Striping Machine

The wise textile man buys machinery on its proven merit.

That is why he specifies Cooper Knitting Machinery. Its past performance has proved its worth. It has served in America's representative mills and is today.

Good, in the pioneer days, Cooper has advanced with the developing industry, and today it is looked upon as the standard by which knitting machinery is judged.

The Cooper Line includes Spring Needle Rib Knitting Machinery—Circular—covering requirements for:

Plain and Ribbed Underwear

Shirt Cuffs

Drawer Bottoms, Etc.

Collarette Machines

Rib Cuff Cutting Machines

Automatic Rib Cutting and Folding Machines

Burr Wheels and Burr Blades

Oldest Makers of Spring Needles in the United States

From a hand-made, sparsely produced needle, the Cooper Line of Spring and Latch Needles has grown with the textile industry into the most complete in the United States. As the first manufacturers of Spring Needles we have retained a life long prestige—accounting for the fact that Cooper is to Needles what Sterling is to Silver.

Charles Cooper Co.

Machine and Needle Works

Bennington, Vermont, U. S. A.

G. H. ROGERS, Traveling Representative, 877 Warren St., Albany, N. Y.

C. C. KELLEY, Sales Manager 121 East 24th St., New York City

J. A. WILLARD CO., INC., Southern Representative, Greensboro, N. C.

Agents: MELLOR, BROMLEY & CO., Ltd., LEICESTER, ENGLAND.

ELBROOK, INC., 50 Peking Road, Shanghai, China. Agents for China and Japan.

M. BUCHSBAUM, Calle Alsina 1814, Buenos Aires, Argentina.

The A B C of Dyeing

Goods are Not Dyed to Be Stripped, But Stripping and Redyeing are Necessary Operations in Every Dyehouse

By NOEL D. WHITE

PART TEN.

In every hosiery mill there is more or less hosiery that has to be stripped and redyed. It is almost a daily occurrence. There used to be a time when hosiery that was not up to standard could be put into black and gotten rid of in that way, but since black nowadays is seldom worn except for mourning, hosiery has to be redyed in the fashionable shades and in order to do that satisfactorily—in most cases it has to be stripped first.

Not all the hosiery that needs redyeing however is necessarily bad work from the dyehouse; there are shades from the stock room that have gone out of style, or that are slow sellers and have to be redyed a readily selling color to reduce the stock; returns from stocks of retail stores that have been on the shelves for a long time and have gone out of style; any wideawake and progressive manufacturer prefers to have the stock moving rather than have the merchants carry obsolete colors and styles over and over, and finally as a last resort have to dispose of it at a loss; and, of course, there is hosiery picked out of lots and sent back to the dyehouse from the inspecting room as unevenly dyed, streaky or spotted.

In the case of discontinued colors to be redyed in a current shade, if the original color is lighter than the shade wanted, stripping is not necessary. The dyer can figure out the dyestuff used on the hosiery as it is, and add to it what dyestuff is necessary to bring about the shade wanted—the same as if he was dyeing a shade on new goods and that can be easily done in many cases in a very short time.

If a dark color has to be redyed a lighter one it is best to strip it, and it can be done without any previous operation, the goods coming from the stock being in good condition. Also, if there are several colors mixed together, even if they are all lighter than the color wanted it is best to strip them to have an even ground to work on, and these can be put straight in the stripping bath.

Sometimes a lot has to be redyed because it has left the dyehouse before a good match was obtained. It may be a bad match between the silk and the cotton, or the artificial silk—if there are three fibers in it. Usually it is not necessary to strip in this case, but a little touching up to bring a better union between the two fibers, or the three as the case may be, might be all that is necessary; but if the difference is too great or the shade too dark, my advice is to waste no time and strip it clean for a new start. There are today in the market some wonderful strippers that can do the work with little or no damage to the fibers. Here, also, there is no need of operation previous to stripping.

In the case of hosiery that comes to the dyehouse to be redyed from the inspectors tables, this hosiery is thrown out for different causes. They may be uneven or streaky from strangling, or badly tangled, or from rushed on dyestuffs, unsuitable addition of dyes or from adding chemicals at the wrong time. Or, they may be spotted with undissolved dyestuff, from grease or oils from the knitting machines and not properly boiled off, or not properly washed, or from dirt, dust and soot; or from any number of causes preventable or otherwise.

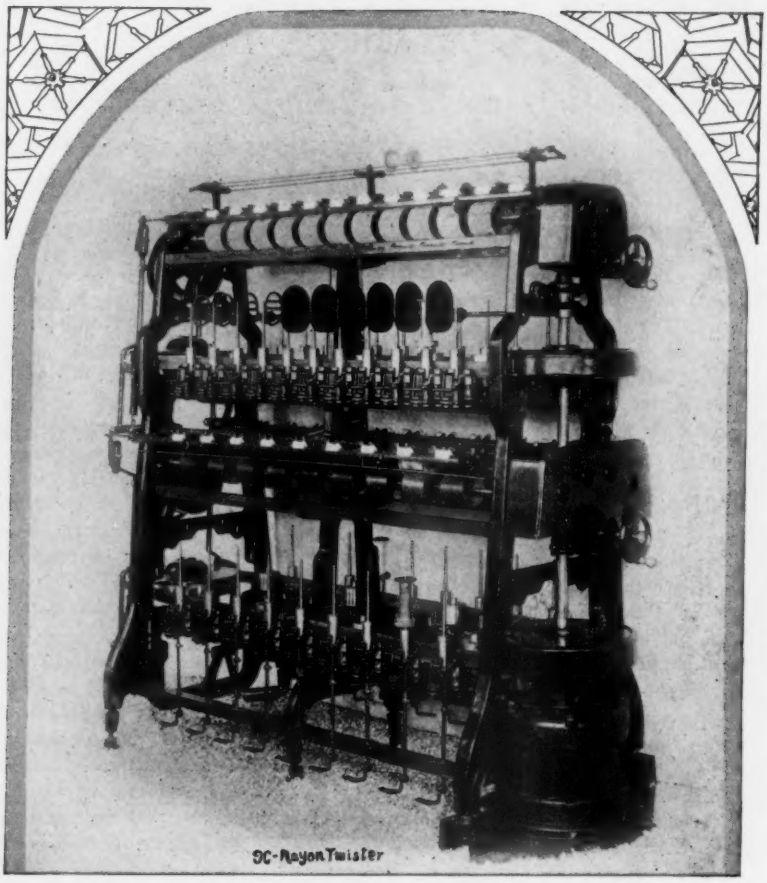
Redyes from this source are all thrown in promiscuously and the dyer is supposed to do a good job on them. Since the dyer is unable to know whether the bad work is caused from grease spots or bad dyeing, or from both causes, the safest procedure in this case is to first clean out his lot thoroughly. This is done by first rinsing out all finish, acid, etc., with which the hosiery had been finished, then a strong rich soap bath made up of 10 per cent soap and 2 per cent soda ash free from caustic, or some ammonia to aid in emulsifying any grease or oil spots that may be in the hosiery to be stripped, as stripping will not clean grease, oil or dirt, it only destroys the colors on the goods. Run for half or three-quarters of an hour at no higher than 140 degreee F., then a good washing in warm water and the goods are ready for stripping.

The stripping agent can be selected from a number now on the market. Each has its good and bad points. Some prefer hydrosulphite as a good reducing agent. Others find the liquid strippers the best, still others use prepared strippers in powder form of which there are a number in the market. The writer will leave the choice of a stripper to the judgment of the user except for the advice that a stripper should be selected that will do the work best with the least trouble of manipulation. Some require the aid of acetic acid in order to do the work, others work unaided. I would select one of the latter. Here is a list of the best known, and most commonly used stripping agents: In liquid form, Vaso; Stripper X; in powder form, Decroline, Camelite, Decolorite, and Rongalite L. powder.

Any of them can be sifted right into the stripping bath at the boil. In order to further protect the silk fiber from any weakening effect that the stripper may have, 1 per cent of Protectol II should be added to the stripping bath at the start, and the goods run into it while the bath is brought to the boil. Stripping is carried on at the boil and should be done completely in 30 minutes, after which a good washing is necessary.

Not all dyestuffs will discharge completely and leave the goods white. Some of the darkest colors will strip well providing there is enough stripper to do the work, but some others will not strip completely no matter how much or what stripper is used. As a general rule the dyestuffs which the manufacturer claims will not discharge with printing discharge, are also not stripped completely by any strippers. That does not mean that such dyes should not be used for dyeing hosiery. Some of the best and most level working dyes I have are of that kind, and the fact that they do not strip well and cannot be discharged in printing should not militate against their use in the dyehouse. Hosiery is not dyed to be stripped again, but

(*Continued on page* 513.)



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The Mental and Physical Attitude of the Worker as a Factor in Safety

Carelessness and Recklessness are Caused by Mental Attitude. From These Come Indifference, Defiance and Disrespect for Safety Rules.

By W. M. McLAURINE.

The mental and physical attitude of people is perhaps more determinative in their conduct than anything that we could mention.

The group generally reflects the attitude of the leader. If the superintendent and overseer are careful and observant of safety rules and regulations, if they strictly and gladly conform to regulations concerning safety, it is more than likely that the group will absorb the attitude. The reverse is true also. Many posters and regulations and rules are often the objects of jeers and cynical remarks, and sometimes they are made in the presence of the workers, which naturally reflects rapidly on the group.

Everyone has some kind of philosophy. He may not realize that he has it, but he has it just the same. There are many peculiar attitudes toward accidents. Two of the most prevailing and destructive theories are that no matter what is done accidents are going to happen. They are fatalistic and a part of the Divine plan.

The second theory is that no man is going before his time, or to state it another way, when an accident befalls a man it was simply his time, and nothing could have prevented it.

These two attitudes are born in the bed of ignorance and grow up into twin giants—"Carelessness" and "Recklessness."

They create indifference, defiance and disrespect for many of the preventive measures that good common sense indicates as necessary and helpful.

There are other mental attitudes that arise, but as they are largely superinduced by physical conditions, we shall discuss physical conditions for a few paragraphs.

Physical and mental conditions play hide and seek with each other in exchange control. Sometimes the physical controls the mental and again it is the opposite.

I have always been a believer in the fact that a well body would produce a wholesome mental state and have a tendency to keep it in poise and equilibrium.

The well body is largely an ideal state, as the flesh has become so inoculated with the maladies of ignorance and indiscretions that the only hope we have is in keeping the body in the best condition possible.

I am an ardent advocate of a medical examination as a prerequisite for employment. This does not mean the elimination or rejection of everyone who has defects, but it does mean that those who have defects that may interfere with their employment should be rejected. It also means that mechanical requirements and physical ability will be properly related. It also means that in case of accident or aggravation of former injury we have some basis from which to work. It means that people can be advised how to care for themselves. It gives the social worker and the nurse complete and authentic information on which to work. It protects the group and so we might go on and on.

As stated before in a previous article, 65 per cent of the accidents that happen are non-mechanical; 22 per cent are caused in handling materials; many of these are mashes, bruises, etc., caused by physical weakness and poor judgment. The weak body soon becomes fatigued and physical fatigue produces an unstable mental state. The automobile that carries a load beyond its capacity is dangerous. Living and working conditions produce physical conditions. Most working conditions are good. Most living conditions are good, as far as housing and location are concerned, but the innermost part, the heart of living is cooking and sleeping.

Many people know little about eating, as evidenced by the hospitals and stomach specialists that are needed to care for rich and poor alike. When Judge Gary found that ice-cream and apple pie were not agreeing with him he made a close study of right living and evolved the following fourteen points to live by:

1. Exercise in the open air, but moderately.
2. Breathe deeply of pure air as much as possible.
3. Leave alcoholic stimulants alone. Take tea and coffee if you like them and they agree with you.
4. Drink pure water.
5. Eat little meat. Eat red meat but once a week.
6. Eat little starch, fat or sweets; eat plenty of green vegetables containing mineral salts; eat whole wheat bread; good fresh fruit and drink milk, if it agrees with you.
7. Follow regular habits.
8. Get plenty of sleep.
9. Work hard mentally and physically, but don't overdo it.
10. Lead a good clean life.
11. Keep an even temper and avoid excitement.
12. Never get angry or indulge in controversy.
13. Obey the Golden Rule.
14. Eat only to satisfy hunger, not to please palate.

The noon hour is an important hour for the mill manager to consider. The time allowed for eating, the rest at noon, the kind of food, etc., the people have to eat or can prepare to eat. This leads me to the restaurant or cafeteria idea which I endorse thoroughly, but will not discuss. A comfortable place in which to eat for people who bring lunches is a necessity. The lunch hour is often a determination of the increased or decreased accident probability for the afternoon.

Sour stomachs, constipation,, indigestion are all forerunners of bad mental states and careless attitudes.

A high labor turnover is brought about by mental attitude and is a breeder of increased accident probability. Every new worker has a new job, new conditions, new adjustments and all of these increase accident probability.

Everyone who works should be able to be happy in his work and this means that he should be able to concentrate

his energies and attention to his job. If physical weakness superinduced by fatigue, wrong habits of living, fear of loss of job and all of this manifold flock of gloom chases through his mind, why should not something happen, and really, who cares if it does, in his mental state.

Many people who are political anarchistic fomenters, are abnormal possibly because of some physical debility and the ordinary or usual things of life do not please them.

Again, physical conditions can produce listlessness, sleepiness of mind and body, until ability to see and know consequences is an impossibility.

People who work all day in a cotton mill or in any other occupation need recreation. If they are tired physically there must be some extra stimulus applied to cause them to take this recreation. People must have something to do and think about besides work. The mill managements that are wise realize this, and they provide means for recreation.

Resting often means rusting. Monotony means the deadening of mentality. A change is refreshing.

In a real safe organization the minds and bodies are alert. The mind is swiftly planning for the body and the body deftly carries out its orders. The dull, sleepy mind is a potential hazard. It behooves every organization that is really trying to carry on safety work to look well into the physical and mental state of its workers.

Accidents don't just happen. There is always a reason and someone is to blame. It may be difficult to locate whose fault it is, but the fault lies with some individual or group. Since this is true, we must impress this fact upon the individual or group and prevent the cause, and if we are unable to do this, then we must remove the individual or group.

The physical or mental condition of the worker is either an asset or a liability in your safety program. It is neither neutral nor negligible.

Calculating Production in the Knitting Mill

Building a Formula from a Concrete Example and Then Applying It and Its Transpositions for a Variety of Purposes.

By WILLIAM DAVIS, M. A.

The calculation of the weight of a given length of knitted web can be made if the following particulars are known: the width of the fabric knitted, the counts and the take-up of thread per course of loops along with the number of courses per inch. It is really a weft calculation if the take-up be omitted but it rarely happens that it is required as a weft calculation in the knitting industry. There are several varieties of knitted fabric where an extra thread is laid into the fabric straight across without any curving and in such cases the formula is employed without any regard to the matter of take-up of thread, the width being the length of thread consumed at each course. There are also special types of warp loom fabrics where an extra thread is inserted between the normal courses in order to give greater bulk and weight to the cloth.

Let the calculation be built up, as described in a previous article, from a concrete example of a knitted fabric worked on a 19 inch diameter circular frame, with 16 courses per inch of 8s cotton where the take-up is 2¾, that is the length of yarn consumed is 3¾ times the width of needles in action, let the length be 100 yards.

In this machine the width actually knitted upon is represented by the diameter times 3 1/7 = circumference of the machine, and this distance multiplied by 2¾, the take-up, represents the number of inches of yarn in one round of knitting.

$$\frac{19 \times 3\ 1/7 \times 2\frac{3}{4}}{36} = \text{yards of yarn consumed in one course of knitting.}$$

But there are 16 courses per inch of fabric so that the following will give the number of yards of yarn consumed per inch of fabric:

$$\frac{19 \times 3\ 1/7 \times 2\frac{3}{4} \times 16}{36} = \text{yards of yarn in one inch of fabric.}$$

$$\frac{19 \times 3\ 1/7 \times 2\frac{3}{4} \times 16 \times 36}{36} = \text{yards of yarn per yard of fabric.}$$

But as the 36 on the top cancels the same number in the bottom, we have:

$19 \times 3\ 1/7 \times 2\frac{3}{4} \times 16$ = yards of yarn per yard of fabric.

$19 \times 3\ 1/7 \times 2\frac{3}{4} \times 16 \times 100$ = yards of yarn in 100 yards fabric.

From the given counts there are in this texture 8×840 = yards of yarn which weigh one pound so that the weight of the fabric in pounds is obtained finally from the following:

$$\frac{19 \times 3\ 1/7 \times 2\frac{3}{4} \times 16 \times 100}{8 \times 840} = 39 \text{ pounds weight.}$$

Let D = width, T = take-up, K = courses per inch, Y = yards, C = counts and B = the hank basis, and the formula can be derived from the example just given:

$$(1)\quad \frac{D \times T \times K \times Y}{C \times B} = W$$

The following can also be derived from this equation:

$$(2)\quad \frac{D \times T \times K \times Y}{W \times B} = C \qquad (3)\quad \frac{C \times B \times W}{T \times K \times Y} = D$$

$$(6)\quad \frac{C \times B \times W}{D \times K \times Y} = T \qquad (4)\quad \frac{C \times B \times W}{D \times T \times K} = Y$$

$$(5)\quad \frac{C \times B \times W}{D \times T \times Y} = K$$

The full formula can now be given by replacing the letters with the terms in these variations of the simple equation:

$$(1)\quad \frac{\text{Width} \times \text{Take-up} \times \text{Courses per inch} \times \text{Yards}}{\text{Counts} \times \text{Basis}} = \text{Weight in pounds.}$$

$$(2)\quad \frac{\text{Width} \times \text{Take-up} \times \text{Courses} \times \text{Yards}}{\text{Weight} \times \text{Basis}} = \text{Counts}$$

$$(3)\quad \frac{\text{Counts} \times \text{Basis} \times \text{Weight}}{\text{Take-up} \times \text{Courses} \times \text{Yards}} = \text{Width.}$$

(4) $\dfrac{\text{Counts} \times \text{Basis} \times \text{Weight}}{\text{Width} \times \text{Take-up} \times \text{Courses}} = \text{Yards in lengtn.}$

(5) $\dfrac{\text{Counts} \times \text{Basis} \times \text{Weight}}{\text{Width} \times \text{Take-up} \times \text{Yards}} = \text{Courses per inch.}$

These formulae can be used for all cases of this kind which occur in practice but the items must appear in their correct denomination, the width is the total width in inches, and for circular frames this will involve two figures, one for the diameter and another 3 1/7 to give the circumference. In the case of straight frames the width of needles on which knitting is taking place need only be given. These formulae can also be used to obtain the weight per yard and cost per yard of the fabric and also for the accurate determination of most varieties of percentage calculations.

Example 1. Calculate the weight of fabric produced on a machine 22 inches diameter, with 18 courses per inch of 16s worsted yarn, the take-up is 2¼, the length is 250 yards.

Following formula (1): $\dfrac{22 \times 3\ 1/7 \times 18 \times 250}{16 \times 560} =$ 34.7 pounds weight.

Example 2. Calculate the counts of yarn in skein system required for a fabric to the following particulars: 56 inches wide flat fabric, take-up = 2.8, 150 yards long, 16 courses per inch, 64 pounds weight.

Using formula (2): $\dfrac{56 \times 2.8 \times 16 \times 150}{64 \times 256} = 22.9$ skeins.

Example 3. A length of knitted fabric of 150 yards weighs 60 pounds, and is made from a folded yarn of 12/24 cotton counts, with 14 courses per inch. Calculate the take-up of yarn on a 19 inch diameter frame. Use formula (6) substituting width for take-up, 12/24 is a folded counts and to obtain the equivalent single multiply the two counts together and divide by their sum:

$\dfrac{12 \times 24}{36} = 8$s.

$\dfrac{8 \times 840 \times 60}{19 \times 3\ 1/7 \times 14 \times 150} = 3.21$ take up.

Example 4. Calculate the width of frame required for a circular fabric 42 yards long, 8 pounds weight, worked from 30s cotton counts with 24 courses per inch and 2½ take-up.

Formula (3): $\dfrac{30 \times 840 \times 8}{2.5 \times 24 \times 42} = 80$ inches straight width or $80 \div 3\ 1/7 = 25.4$ inches diameter circular frame.

Example 5. Calculate the yards of knitted fabric which can be obtained from 1000 pounds of 2/22s worsted counts, there are 20 courses per inch and 2.75 take-up, 22 inches diameter of circular machine.

Formula (4): $\dfrac{11 \times 560 \times 1000}{22 \times 3\ 1/7 \times 2.75 \times 20} = 1619.8$ yards length

But these calculations can be used in a wider sense to obtain the weight proportions in mixture fabrics and to the calculations can also be added the cost of the material and the weight per yard.

Example 6. Calculate the weight of 250 yards of fabric worked on the 19 inch diameter circular frame with 22 courses per inch, the pattern particulars being as follows:

3 courses of 20s cotton, take-up 2.75.

1 course of 200 denier artificial silk, take-up 3.

In this problem it is advisable to transfer the artificial silk counts into cotton: $5282.5 \div 200 = 26.4$ cotton counts. In the formula for the 20s cotton will appear ¾ to denote the proportion of courses which are inserted in this counts while ¼ will appear in the formula dealing with the artificial silk.

$\dfrac{19 \times 3\ 1/7 \times 2.75 \times 22 \times 250 \times 3}{20 \times 840 \times 4} = 40.3$ pounds of 20s cotton.

$\dfrac{19 \times 3\ 1/7 \times 3 \times 22 \times 250 \times 1}{26.4 \times 840 \times 4} = 11.16$ pounds of artificial silk.

Total = 51.46 pounds weight

$250 \div 51.46 = 4.8$ yards worked per pound of yarn.

$\dfrac{51.46 \times 16}{250} = 3.3$ ounces per yard from the frame.

The selling weight per yard would be calculated on the length finished, less any loss of weight in finishing. Thus in this example, if there are 220 yards finished with 5 per cent loss of weight, the ounces per yard finished would be obtained as follows:

51.46 pounds less 5 per cent = $\dfrac{51.46 \times 5}{100} = 2.57$ pounds less.

51.46 less 2.57 = 48.89 pounds = the weight of 220 yards finished.

$\dfrac{48.89 \times 16}{220} = 3.5$ ounces per yard.

Example 7. Full particulars are required of the following knitted fabric, 2000 yards long from a 26 inch diameter circular frame, 21 courses per inch, with a pattern as shown:

5 courses of 2/24s worsted at 5 shillings per pound. Take-up = 2.75

2 courses of 300 denier artificial silk at 6 shillings per pound. Take up = 3.

1 course of 200 denier folded with 24s cotton. Take-up = 2.4

200 deiner at 6/6 per pound and 24s cotton at 2/2 per pound.

In this statement it will be convenient to start by calculating the cotton equivalents of the artificial silk yarns thus 300 deniers = $5282.5 \div 300 = 17.61$ cotton counts.

200 deniers = $5282.5 \div 200 = 26.4$ cotton counts. Otherwise the folded yarns can be taken separately as set out in the following formulae:

2/24s worsted: Shillings

$\dfrac{26 \times 3\ 1/7 \times 2.75 \times 21 \times 2000 \times 5}{12 \times 560 \times 8} = 877.1$ pounds @ 5/- = 4385.5

300 deniers:

$\dfrac{26 \times 3\ 1/7 \times 3 \times 21 \times 2000 \times 2}{17.61 \times 840 \times 8} = 174.1$ pounds @ 6/- = 1044.6

200 deniers:

$\dfrac{26 \times 3\ 1/7 \times 2.4 \times 21 \times 2000 \times 1}{26.4 \times 840 \times 8} = 48.6$ pounds @ 6/6 = 315.9

24s cotton:

$\dfrac{26 \times 3\ 1/7 \times 2.4 \times 21 \times 2000 \times 1}{24 \times 560 \times 8} = 76.3$ pounds @ 2/2 = 164.8

1176.1 pounds = 5910.8

$$\frac{5910.8}{1176.1} = 5/1 \text{ per lb.}$$

$$\frac{1176.1 \times 16}{1000} = 18.8 \text{ ounces per yard.}$$

It sometimes happens that the output and weight of knitted web are required at one operation in which case it is advisable to take out the given factors dealing with the output calculation and at a second operation find the weight in pounds of this length of knitted fabric. There is however no need to have two operations because a single formula can be devised from the two already given. Let the yards production formula be given again:

$$\frac{5 \times R \times H \times F}{3 \times K} = Y \text{ or yards produced where R =}$$

rounds per minute knitted, H = the hours net, and F = the number of frames with K as the courses per inch.

The formula for the weight of knitted web, as in (1) is as follows:

$$\frac{D \times T \times K \times Y}{C \times B} = W \text{ or weight in pounds.}$$

Before the latter formula can be used however, the length or yards Y must be stated so that taking the above production formula and placing it in the weight formula instead of Y we have the following:

$$\frac{D \times T \times K \times \left(\frac{5 \times R \times H \times F}{3 \times K}\right)}{C \times B} = \text{weight in pounds.}$$

Transposing the formula,

$$\frac{D \times T \times K \times 5 \times R \times H \times F}{C \times B \times 3 \times K} = \text{Pounds weight}$$

and noting that the courses per inch on the top of the line cancels out the same item on the bottom the final formla for this problem is given thus:

$$\frac{5 \times D \times T \times R \times H \times F}{3 \times C \times B} = W \text{ or pounds weight, or worked out in full:}$$

$$\frac{5 \times \text{Width} \times \text{Take-up} \times \text{Rounds} \times \text{Hours} \times \text{Frames}}{3 \times \text{Counts} \times \text{Basis}} = \text{Weight.}$$

Example 8. Calculate the weight of knitted web obtained from 16 frames of 19 inches diameter and 4 feeds each with 30 cylinder revolutions per minute, 22 courses per inch, 32 hours per week (stoppages have been deducted), take-up = 2.75, counts = 16s worsted.

Substituting in the last-given formula:

$$\frac{5 \times 19 \times 3\ 1/7 \times 2.75 \times 30 \times 4 \times 32 \times 16}{3 \times 16 \times 560} = 1876.7 \text{ pounds weight.}$$

This can be checked by taking the above two items separately, when for the length the formula will be stated thus:

$$\frac{5 \times 120 \times 32 \times 16}{3 \times 22} = 4654.5 \text{ yards production.}$$

Then taking the second section as a weight calculation:

$$\frac{19 \times 3\ 1/7 \times 2.75 \times 22 \times 4654.5}{16 \times 560} = 1876.7 \text{ pounds as before.}$$

Changing Color Over Night.

What promises to revolutionize the knit goods trade as well as textiles is a new process whereby it is claimed these articles of dark colors can be changed to light shades. Those of black can be made white in the new form of dyeing or stripping, and it is said that garments can be put under this process and the color changed in a few minutes, thus enabling the women to change colors over night.

M. H. Gysso, 97 Market street, Paterson, N. J., has been using for several years and perfected a process, it is stated, whereby textiles can be changed from dark colors to light without injury to the goods. He is now forming a company to exploit the process and in a short time we can wear hosiery, dress, wrap, underwear, etc., of one color today and the same articles tomorrow in a different color. One day black, the next white, etc. "Will this idea appeal to the woman", has been asked by those in the trade, and the general reply has been "yes". It is likely to save manufacturers considerable on left over colors.

Just what may develop from this process is unknown, but the general opinion is that there are possibilities, and in a year we might see some wonderful changes in the textile industries.

While the present change has been experiments with silk cloth, yarns and rayon, it was said that cottons could be handled by the same process.

It has been announced in the Melbourne Herald that some such discovery has been made by a man named G. F. Loyd, of Melbourne, who has been at work on the process for fifteen years and has just perfected a fluid that can change the color without injury to the material.

However, the Paterson man claims his process is the first to do as he claims it is possible and the secret is known only to himself. He has been using it for several years, but has just had it patented and is of the opinion that the trade will rapidly adopt the process when he is ready to make public the method of changing dark colors to light. His plans have not been completed and he can't say whether he will put this dye up in small quantities, or turn the process over to the large concerns to handle in the manufacturing line, although one of his friends appeared to believe he would prefer to keep secret the process and prepare it in small quantities for the small handler.

Among the newest novelties to be presented by the knit goods trade have been printed scarfs, sweaters, blouses, hosiery and underwear. These prints are in floral borders, large motifs and allover designs and appear to "have taken hold of the trade" in this section, although all manufacturers do not believe that printed hosiery will be active among the more conservative buyers. It was said that with buyers looking for novelties, it was believed they would be active in certain branches of the trade and in certain sections of the metropolitan area. The prints consist of a floral spray at the garter line and in some cases is doing away with the garter of bright colors.

Tiny sprays are also printed in clox effects at the instep and where the hand embroidery has been preferred by some, prints are now taking their places. Metal colors have been sponsored in the decoration and it is notable that black is finding favor for this purpose as well as the light shades for street and evening wear.

Blouses and underwear in allover printed numbers are wanted in increasing volume, it has been said in both floral and some geometrical designs and blue is one of the most frequently noted colors and in combination of shades, Silver or gold is often used as bandings in this type of print.

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Next month, a further discussion of this problem.

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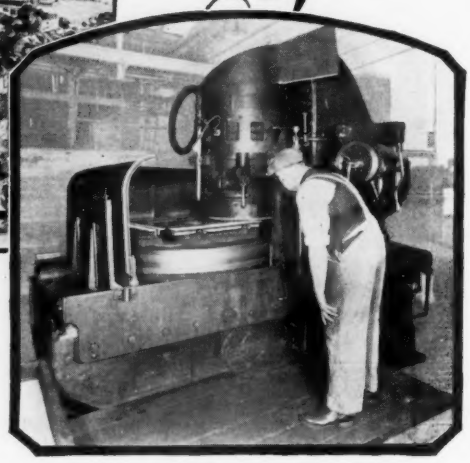

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The **READING** — *Full Fashioned Knitting Machine*

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any partcular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Trouble With a Crocking Color.

EDITOR COTTON:

We are dyeing men's heavy socks, knit from wool and cotton with direct black, after treated with formaldehyde and acetic acid and are having trouble with the color crocking. We are dyeing ladies' and men's fine hose in the same way and have no trouble with those.

Any information the readers of "Knitting Kinks" can give me as to the probable cause will be sincerely appreciated.

CONTRIBUTOR No. 985.

The Hydroscopic Treatment of Silk for Full-Fashioned Knitting.

EDITOR COTTON:

I would like to have opinions from some of COTTON'S readers as to the hydroscopic treatment of tram silk for full-fashioned knitting. It is in line with attempts to eliminate crepe lines in silk fabric knitted on full-fashioned machines. We have tried it without any appreciable improvement, this with the possible tendering of the fiber has an element of danger in experiments and should be used with caution until a little more practical experience has proven the real value of the hydroscopic treatments being prescribed for throwsters. We would like to hear from chemists and knitters, too, on this question.

CONTRIBUTOR No. 3036.

Topping at Night on Full-Fashioned Work.

EDITOR COTTON:

I am unable to agree that it is at all practical to do topping and footing at night on full-fashioned work. A question about this was asked in a recent issue of "Knitting Kinks".

In the first place it is necessary to use girls for topping, and good girls for this work are hard to find, and hard to keep after they are found, because they all have a tendency to get married and leave the mill, and when this additional dependence is placed in them, their leaving will disrupt the organization to a larger extent than where only a day shift is used, making the supply more plentiful and the work on them all less arduous.

The footer is a great deal more intricate to operate than a legger is, and when more than one man handles a footer, it complicates matters. I mean that a man will set a machine in a certain way and it will "get used to him". If two men are on it, maybe the day man will pull his needles to the right, and the night man to the left.

CONTRIBUTOR No. 3013.

EDITOR COTTON:

This refers to the letter of your "Contributor No. 3011", who asked whether it is practical to do topping in a full-fashioned mill at night. It is of course an obvious fact that intricate work of this kind is much better when done by daylight, but this man says his machinery lay-out apparently will force him do night topping and footing in order to keep up with his legger production.

For his information I will say that we have been doing topping and footing by artificial light at night for about four years, and, with a slightly higher wage scale, it is working out successfully. I might say, however, that our mill runs on three shifts—7 A.M. to 3 P.M.; 3 P.M. to 11 P.M.; and 11 P.M. to 7 A.M. We do topping and footing only on the first two shifts, the toppers and footers stopping at 11 P.M. Therefore, only a part of the work on the second shift is done after dark, because in our location for a greater part of the year, we do not need artificial light until well into the evening. In this way, we of course have two men operating the footers, but by careful selection of the men for this work I have experienced little difficulty, in four years' work, or any great amount of trouble caused by different ways of running the machines.

CONTRIBUTOR No. 3012.

EDITOR COTTON:

In answer to "Contributor No. 3011", will say, it has never been considered practical to do footing at night because of the topping problem, but at times, when by reason of unbalanced leg stock or for the reason mentioned by this contributor, we have had to do it, but it has only been a temporary arrangement.

To sum up, these are the points which have to be taken into account: Can toppers for permanent night work be secured? Will the laws of the locality, or state, allow the girls to work all night? Can boys be found to learn

to do the night topping?

If the foregoing points can be taken care of, and with the help of the Cooper Hewitt light, I would say, "go to it"!

The only other practical way to take care of the footer capacity on day turn alone, would be to shut the leggers down at night. This would bring the production of the seven leggers to the capacity of the two footers by running the footers overtime.

The answer lies in the ability to procure the high class help needed for this night work. If that cannot be accomplished, the full day shift for both leggers and footers would have to be on the knitting plan.

We are running our leggers on the double turn schedule and the footers on day shift, on the basis of twelve leggers to seven footers.

I hope that this may be of some help to "Contributor No. 3011."

H. U. C. (TENN.)

EDITOR COTTON:

I notice that "Contributor No. 3011" desires some information as to the advisability of doing topping at night so he can operate his footing machines on a night shift, in a full-fashioned mill.

We have been operating our footing machines nights for the past two years, and after some difficulty, have succeeded in making this operation efficient, productive and economical.

In order to succeed, we trained young men between the ages of sixteen to eighteen years and only employed those whose education and intelligence was a little better than the average. As we train all our knitters, the inducement to secure such young men is, that later they become knitters' helpers, and of course they must learn how to top on a stocking as part of the trade. As knitting is the best paying trade in the locality, we have no trouble in securing just the kind of young men we want.

Our greatest difficulty, at first, was to get production and quality, and we found that in topping the whole night under artificial light, the eyes tired after a few hours, and the result was loss in production and an increase in menders.

We employ helpers on footing machines on our day shift; also on the night shift.

We tried several ways of overcoming tired eyes, and finally, the following method gave us the results we were after:

Instead of employing two toppers and one helper for each footing machine, we use three toppers, all trained as helpers on the footing machines. We then used what we called a one-hour shift. One topper acts as helper for one hour, while two toppers "top" the bars. After one hour the helper returns to topping and one of the other toppers acts as helper. The result is that each topper does topping for two hours and helping on the footer for one hour. This method breaks up the tediousness of topping continually, allowing each young man to spend a part of his time in learning the knitting trade and he is thereby more interested in his work. It also gives him a chance to rest his eyes and limber up his active muscles. The limbering up and stretching of muscles, we found to be just what was needed, as young men around eighteen years of age are naturally very active, and sitting down most of the time eventually makes them nervous and indifferent to their work.

In the matter of rate per dozen, we pay one cent more for topping at night. In addition, we take the weekly wage we pay a footer helper and divide this between the three toppers. In other words, each topper receives one third of the production of the footing machine plus one third of what a footer helper receives.

We never attempt to teach a topper at night and do not use them until they are capable of keeping up with the footing machine production. We found that teaching at night gave us too great a labor turn-over, as the hardest part of topping, especially in reference to eye strain, is when the new employee is learning. Even daylight is none too good to the learner until he knows the stitch and can follow the course.

Good light at night of course is necessary, and while my experience with Cooper Hewitt lights is very limited, the little experience I have had with such light makes me feel that it would perhaps not be proper for night work. We use a direct light over each topping stand, with a shade that does not throw the light into the eyes of the topper, but throws the light directly on the top of the transfer stand. This allows each topper to see the stitch clearly, without shadows, and never have we had one complaint about this. We also have overhead lights so as not to have too much darkness, as we were informed that going from extreme light to extreme darkness was what made the eyes tired. I might add that our lighting problem was taken up with a large industrial lighting concern, and would recommend that "Contributor No. 3011" do this also. Any concern dealing in shades and lights for industrial purposes would always be willing to render this service, and as each mill is built or situated somewhat differently, the matter of lighting must also be adapted for each mill and the conditions prevailing in a particular mill.

One thing we found to be necessary, and that was in operating footing machines a night foreman was also necessary. Young men at the ages of sixteen to eighteen years are inclined to be wild, and without supervision and discipline good results cannot be obtained.

In summing up my experience in connection with night topping, I would recommend the following: That good, bright, industrious men be employed for this work; work on a shift basis, as we found it to be very successful; get the best lighting system that can be obtained for such work; and have the work properly supervised at all times.

I am sure that by following out these recommendations, "Contributor No. 3011" will find that night topping can be done successfully and that he will be able to operate as many footing machines as he desires.

CONTRIBUTOR NO. 3018.

Superintendents and Experience.

EDITOR COTTON:

Should a superintendent of a hosiery mill be an experienced man in all departments of the mill? I would say, most emphatically, yes. But as this question is open for discussion by COTTON'S readers, it would be most interesting to hear their various opinions.

The superintendent is looked up to for advice on any and all problems which may arise from time to time in every department of the mill. If he lacks experience, and is therefore unable to answer these questions or straighten

out the difficulties, he loses, in the eyes of those connected with these departments, his prestige, together with their confidence and respect. The superintendent should be equal to every task and emergency, and this is only obtained by practical experience.

There is at all times, in one or more of the departments, problems that require checking up. If the heads of the departments are unable to fathom these problems, it is up to the superintendent to be able to give these men assistance and to show them how it can be done. Unless the superintendent has the necessary experience he has to bluff it out, but bluffiing can only go so far, and only for a limited time can such a man hold a job.

The superintendent is looked upon as a model by the average worker, and he has to live up to it and prove it to their satisfaction or his life is not very pleasant. Therefore, I claim, and I believe other readers will agree with me, that a man, to be the superintendent of a knitting mill, should have wide experience and should have real executive ability, keeping harmony among the employees and by being a leader, not a driver, he will retain the respect of the help and thereby get the results that only come through ability and experience in every department of the plant.

C. H. (CANADA).

Adjustments for Pointed Heels.

EDITOR COTTON:

Hose with tapered or pointed heels have become quite popular with the hosiery trade, resulting in hosiery manufacturers equipping their machines to supply the trade on this type of goods. This style originated first on the full-fashioned machines and seamless manufacturers imitated the effect to supply their trade.

There are several different types of these heels on seamless hose, and although they produce nearly the same effect, the method of manufacture is not the same, due of course to patent rights.

The writer is going to take the pointed heel produced on the Scott & Williams machine as an example and show the proper adjustments to be made on the machine for the production of a perfect heel, which is essential in order to have a ready sale. In Fig. 1 are shown seven common defects which will be discussed and explained in order.

A. *Uneven lines.* In order to have the pointed heel thread cut in and out on a clean line, it is necessary to have this finger almost touching the needles. When sent out from the factory this finger is purposely larger than need be in order to allow the machinist who applies the attachment to the machine to cut the finger on a radius, and it must be set to clear the needles as closely as possible when in action. In cutting this finger it may be necessary to grind a little off the bottom in order to allow the finger to drop low enough to catch the yarn on the needles when in action.

When the pointed heel finger is in action there should be from 1/32-inch to 1/16-inch clearance between the thrust bar and the bottom of the finger, in order to allow for the proper throw of the finger when in action, as shown in the illustration in Fig. 2.

The yarn tension through which the heel yarn runs should not be too light. There should be enough tension to fairly hold the thread so that it will not vibrate too much.

Too much stress cannot be put on the importance attached to needles in obtaining a perfect line. The needles must be straight; if they are not, the thread will not come

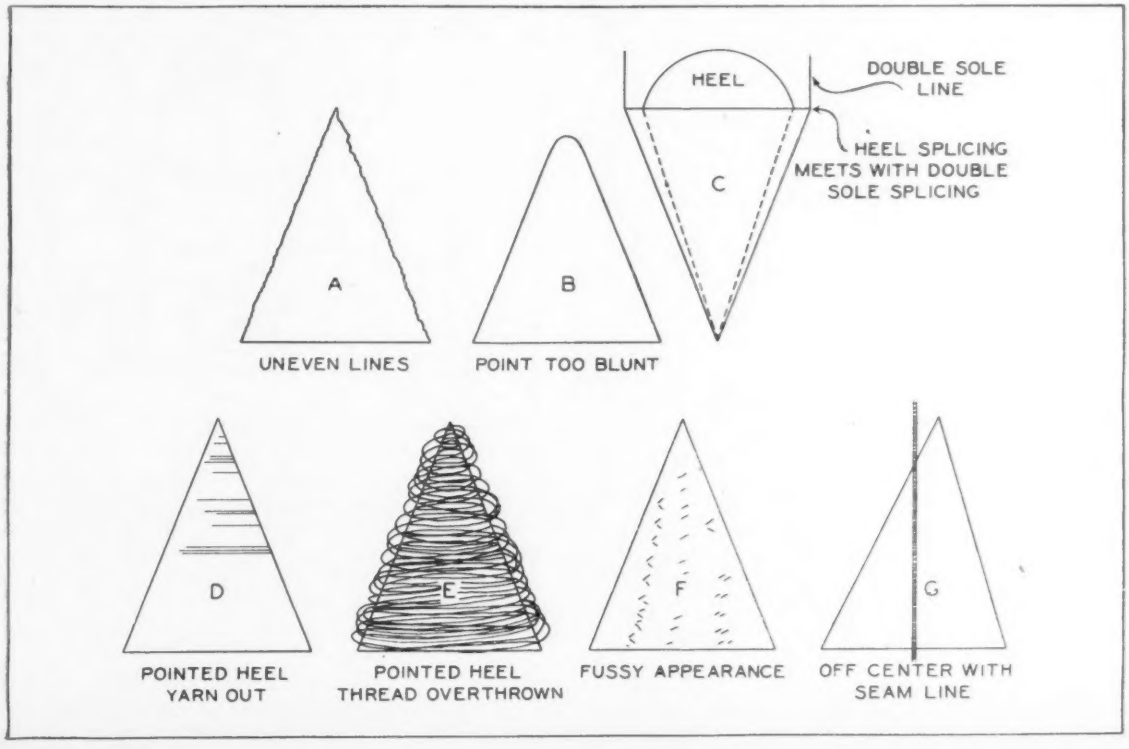


Fig. 1.

out and go in on the needle it happens to hit at the time it is in action, causing a wavy line.

Care should be taken that the finger is strong enough to make each up and down motion of the finger positive; also, to see that the finger works freely.

The takeup must have free motion and the thread when

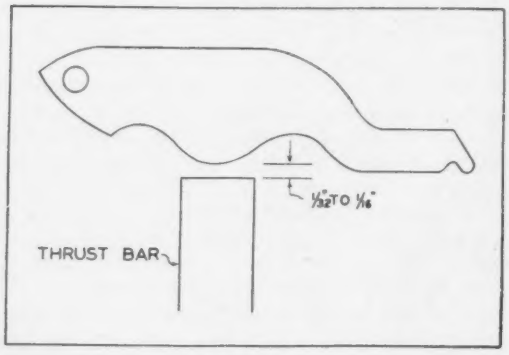


Fig. 2.

released must not snag on any part of the machine, otherwise this trouble results.

B. *Point Too Blunt.* To get the heel thread to start in almost to a point and then gradually widen, this adjustment is secured on the rack wheel cam rod assembly, No. 9892-Y. This cam rod has on its back portion an eccentric held in place by a set screw. This eccentric rides on a large eccentric which controls the time of the finger when it is in action. In order to make the point smaller, the set screw on the cam rod is loosened, setting it back slightly. This results in a shorter period of time that the finger starts in action to the time it is thrown out. Care must be taken not to set it back too far, as it will cause the points of the heel to not meet with the point of double sole yarn in the foot. If set too far ahead, just the reverse occurs—the points of the heel go beyond the points of the double sole. If this adjustment cannot be obtained due to the last two reasons mentioned, set the eccentric to where it allows the pointed heel thread to meet with the double sole, disregarding the point; then set the eccentric on the thrust bar No. 7038, which is under the heel finger, down a little. By doing this it will result in a quicker throw of the finger, bringing the point right. The needles, and the length and tension of the pointed heel finger, also have a relation to this particular trouble, as mentioned in the discussion on uneven lines.

C. *Meeting Double Sole Splicing.* As the double sole yarn is supposed to meet with the heel yarn, also leaving the proper reinforcement in the gore corners, it will be noticed by the dotted line in the illustration C how it sometimes does not meet. The proper method of adjustment, according to the instruction from the factory, is as follows:

In adjusting the heart shaped cam on the bevel gear, it should be advanced so that the yarn is lifted out on the second medium needle when turning the machine by hand. When the machine is run by power the spring in the various parts will allow all of the medium butt needles to take the yarn. This adjustment is necessary in order to make the angle of both sides of the taper as nearly alike as possible. If the cam is set so that the heel yarn finger is lifted after feeding the yarn to all the medium butts, the termination of the taper on the lifting out side will be further away from the corner of the heel than on the dropping in side.

D. *Pointed Heel Yarn Out.* The yarn being out in various places across the pointed heel is caused mainly by the welt presser being set in too far. According to rules, the welt presser should be set in about ¼-inch from the back of the needles to the front of the presser and the yarn must pass freely under same. The presser must not be bent so that it will lay tight against the sinkers of fabric. Still, if the presser is out too far, this will also result. See that there is the proper tension, as explained in the discussion on uneven lines, and if a transfer dial is used that the outside edge is full of burrs of any nature; otherwise, the heel thread as it makes its swing under the dial will get caught on the burr, causing it to overthrow into splicing trouble.

The shield, No. 6180, goes into action in between the edge of the transfer dial and back of the needles at the point of the pointed heel finger. The purpose of this shield is to prevent the heel yarn on its upward throw from

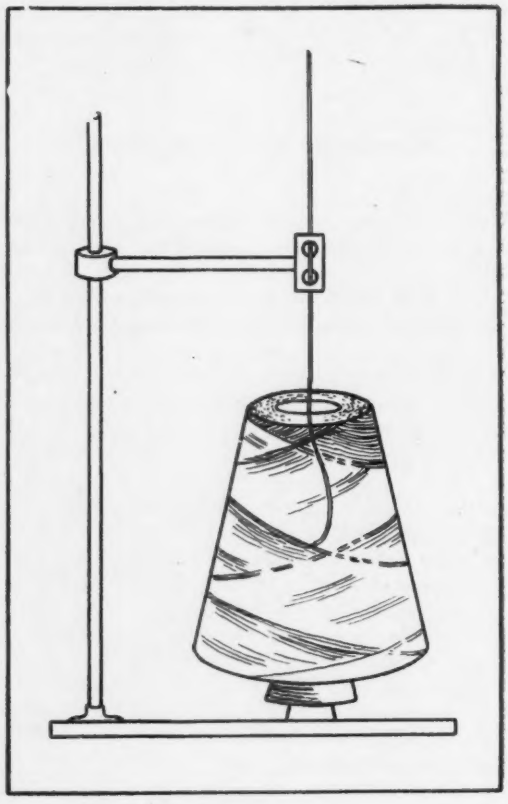


Fig. 3.

overthrowing on top the dial; also its purpose is mainly to hold the thread as close to the needles as possible when out of action so that at the time the finger drops in action the thread catches the needle. This shield must be set to the right as far as possible, seeing to it that the right side of the shield clears the splicing finger when out of action. This shield must be perfectly smooth on the bottom and must not be set down too low, otherwise it will not allow for the swing of the heel yarn, also rubbing the top of the presser, causing throwouts of splicing across the heel.

E. *Pointed Heel Thread Overthrown.* The snagging

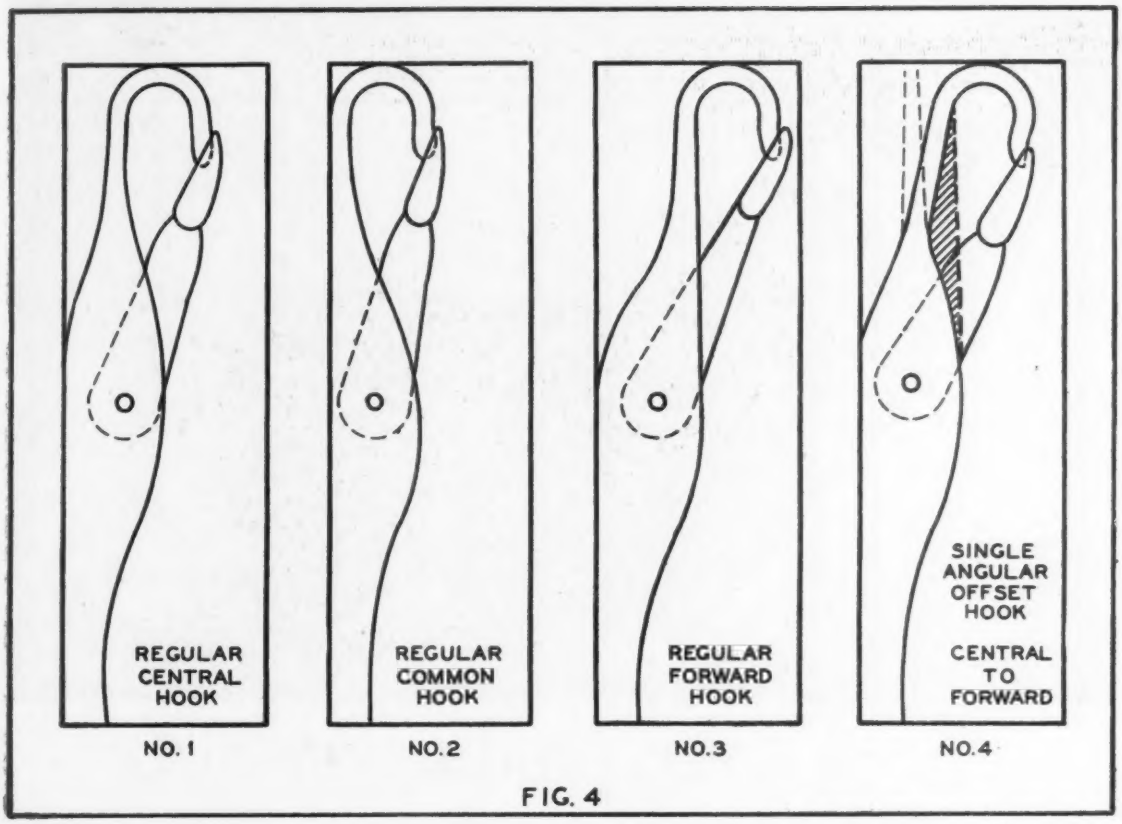


FIG. 4

of the yarn as is shown at E is caused by several things. If a transfer dial is used the outside edge must be perfectly smooth. If this is not so, the heel thread, when it comes out of action, will catch on the burrs, causing it to take more thread than is necessary.

If the welt presser does not come in action on the pointed heel, this trouble will result in the heel thread overthrowing, causing the same trouble.

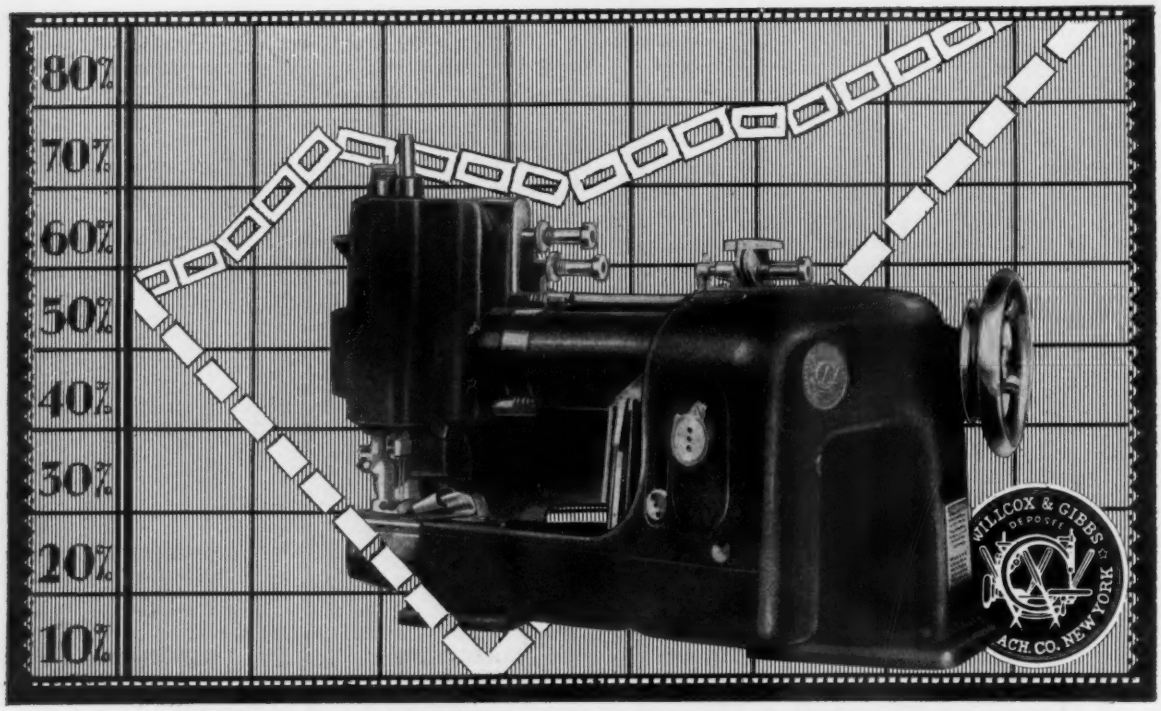
Once in a while the shield, as explained, will not come in action, and the same thing occurs. The heel thread will flop out of the yarn tensions at times, also causing this trouble. In order to overcome this last trouble, the illustration as shown at Fig. 3, has helped considerably. This guide extends over the heel thread. The heel thread is run through a porcelain guide with two eyes—in one eye and out the other. The effect of this is to take up the slack in the thread when the heel yarn goes out of action.

F. *Fussy Appearance.* The fussy appearance of the pointed heel is caused by the shearing of the heel threads, leaving small ends sticking on the outside pointed heel portion. This trouble, which is understood by all to be a common one, is more of a problem on this work. This is due to the fact that there is no present means of slackening the fabric in the heel as there is in the double sole. As a result, if it is attempted to get too tight a stitch on the ankle, the needles ride so high that the chance of the threads getting pinched is evident. The proper length of the finger, a stitch cam that is full enough on its going down side to hold the needles low, and not too much tension on the yarn, are the remedies. These features are all explained in "Knitting Kinks Handbook No. 1", which can be secured from COTTON.

The writer wishes to mention here that the Torrington Company have recently come out with a short taper needle, which to my mind is just the thing for this trouble. This needle has a large opening between the latch and the hook, as will be apparent from the accompanying illustrations. I am indebted to the Torrington Company for a complete explanation of how this new needle was developed, and since it will be of interest in connection with this discussion, I will use the illustrations herewith, together with a description of the different kinds of needles shown.

In the illustration, Fig. 4, the regular central hook needle is shown at No. 1. The regular common hook needle, which has been the longest used, is shown at No. 2. In this needle, the hook wire is offset backwards so that the back of the needle is straight clear out to the bend of the hook. On the regular forward hook needle, however, which is shown at No. 3, the hook wire is offset forward, so that from the beginning of the cheek of the needle to the bending of the hook is a straight line parallel with the back of the needle.

The main difficulty presented in a forward hook needle is that the opening between the latch and the hook is not so great as, for instance, in a common hook needle, such as is shown in No. 2. Furthermore, the angle of the inside of the hook with the angle of the latch is very sharp and tends, on very tight knitting, to fray or shear some of the filaments of the yarn, resulting in a fuzzy line, the manufacturer has explained. To eliminate this, the single angular offset hook needle, as shown at No. 4, has been developed, and this is the needle I have in mind in connection with this discussion. The dotted line in this drawing indicates the original position of the hook wire, as it ap-



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pears, so far as position is concerned, in the regular central hook needle shown in No. 1. This has been bent forward to the hook position of the needle shown at No. 3, resulting in the additional space shown by the cross-hatching in the drawing. Furthermore, it will be noticed that the angle between the latch and the inside of the throat of the needle is considerably wider than on the needle shown at No. 3, this tending to minimize the shearing or fuzzing effect. I am advised that the needle at present being supplied is covered by extensive applications for letters patent.

G. *Off Center With Seam Line.* The seam must come straight through the point of the pointed heel. If the seam is either to the left or to the right of the point, the adjustment for this is secured on the heart shaped cam on the bevel gear, setting it ahead or back, as occasion requires. Many times, in adjusting this cam on the bevel gear, it will bring the seam line on the point, but after this is gotten it throws the heel off in the curves of gores. When this occurs the adjustment of the cam on the bevel gear must not be changed. As the heel yarn must meet with the double sole yarn it is then necessary to move the needles over to the left or right, as explained under "meeting double sole splicing." I have found that from one to three short butts must be moved from left or right of the mark of cylinder. As long as there is the proper number of short butts, no harm results. Naturally moving the short butts results in skipping a corresponding number of medium and long butts to get it to come out even. It is necessary to do this on some machines, because due to the uncertainty of the motions, it cannot be attained in any other manner. If this is done in the proper way, the proper reinforcement will be left in the corners of gores also meeting with the double sole yarn.

CONTRIBUTOR No. 1004.

Wants Method to Dry Silk Legs Before Topping.

EDITOR COTTON:

I would be glad to see in "Knitting Kinks" a discussion as to what methods are found practical for the best results in drying out the silk legs before the topping operation in full-fashioned work. We have found that wet tops are harder to top on and at the same time secure perfect instep lines. If any readers are doing anything of this kind I would be interested to have them describe their methods in detail.

CONTRIBUTOR No. 3042.

Knitted Outer Apparel.

With the turn of the year many changes are taking place in the knit goods market. Buyers are becoming more "alive" and beginning to see things differently. They are looking further into the future and anticipating their needs with more interest than they have done for some years. Factors are admitting that the business for outer apparel has come forward considerably, and that for men's wear has changed even beyond their expectations.

Who would ever have believed that the men would come to wearing knitted rayon and silk pajamas, or the knitted silk underwear such as was featured, bought and now in the hands of consumers as the result of the holiday trade? Even the pastels were wanted, and the new owners must be satisfied, since it has been said that few exchanges have been made except for larger sizes. The jobber making this statement said a strange feature of the situation was that rarely was an exchange made for a smaller size.

It has been said that the mills feature many of the light pink shades and the new line of pajamas will conform to the demand by cutters of women's apparel for the knitted satin. This will give the satin finish to all of the knitted articles, many of the manufacturers featuring the rayon, rather than all silk.

While we are told of elaborate decorations hand painted on these garments, plain ones are preferred by conservative men.

In outer apparel for women the knitted dress, coat, wrap or blouse tends toward pink tones. This color tone predominates in most of the houses featuring these lines. Rayon and silk, or rayon and cotton are favorites, and at the moment, it was said that cotton is among the most active in all lines. The one piece as well as two piece dresses are wanted.

A new type of scarf has been tried out to catch the popular demand of satin faced goods of this type and looks like a plain piece of satin crepe. The effect is pleasing. Occasionally it is printed or hand painted on the ends, and in a few cases manufacturers prefer the silk fringe, but the numbers are fast increasing and catching the fancy of the buyers. It has been said these numbers have been active for the resort trade and in one case, the producer claims to have been pretty well sold ahead for the next three months.

Chic hats of this type of knitted satin, being made to contrast with the garments or scarfs, at the moment are active. They are soft and can be folded, making it a practical number. When made in the tam and draped effects the hats have been good sellers.

A few metal shades are being introduced at the close, and it was said a few firms were going to feature the tinsel hosiery. While tinsels have not been used altogether for this purpose, a rayon yarn has been produced which gives this effect and appears to be gaining at the moment with many producers planning to feature this type of stocking for their late Spring business, particularly in the numbers used for evening.

One manufacturer predicted a big white demand and is making up several white numbers, embroidered in various styles in color. Ankle clox are shown, some knee and garter decorations and some knee clox have also been featured. Black on white is attracting the attention of some buyers at the close.

Sports numbers are colorful, with several Scotch plaid numbers among those receiving attention in rayon and worsted. This business is generally on the spot and for future, although some Spring business is being done at a few of the larger mills. Children's cotton and rayon 7/8 socks are wanted and among the most active.

Westinghouse Manufacturing Executives Promoted.

Announcement has been made by Westinghouse Electric & Mfg. Co., of the appointment of E. C. Brandt and F. J. Shirling as assistant work managers at the East Pittsburgh Works, and J. E. Webster as chief plant engineer. Changes simultaneously announced by E. R. Norris, general works manager, are the appointment of A. E. Kaiser as director of production for all works and S. C. Hoey as works manager of the Homewood Renewal Parts Works.

The Yarn Market

Philadelphia, Pa., February 17th, 1928.

On the whole, and considering the entire period, the past four weeks have rounded out a generally encouraging situation in the Philadelphia cotton yarn market. This is with specific reference to the position of the selling division. and also applies in a general way to the effect of developments upon the condition of the market generally. Starting out without much promise of justifying some of the optimistic predictions made for it during the previous month, the market, as the past month progressed, showed increasing signs of strength until at the present writing sellers exhibit a better feeling as to the immediate future than has been displayed for some time.

The first week in the period started out rather slowly, with business coming spasmodically and in unencouraging volume. The developments of the previous week had indicated improvement, a slightly better cotton situation had strengthened the confidence of dealers, and it was true that spinners were holding to their quotations with a determined firmness. It seemed they had in some way secured orders at more or less satisfactory figures, for mills continued to operate with business, and there was apparent no effort at unloading distress yarns, because it seemed there were no extraordinary surplus stocks at the mills.

At the same time, the consuming end appeared to remain adamant, their position being explained by the fact that they had been disappointed in the amount of interest which had been displayed from the wholesale districts. A deadlock seemed to continue, in the face of indications pointing to activity, and it appeared that better yarn business was dependent upon a rise of consequence in cotton values, and a loosening up of the restricted manner which this market's consumers were finding on the part of their own customers. So that all in all, yarn salesmen found the way not smooth and beset with much hardship, but they plugged away with determination, encouraged by the fact that in their own market, and in the markets of their potential customers, fundamental conditions were unquestionably sound.

It seemed during the next week that sizeable orders of consequence were still being held up awaiting a favorable development in the condition of cotton, meaning its stabilization and at an improved level, and the development of more activity in the way of business from wholesalers and other users of the products into which the yarn from this market goes. Prices generally were quoted a few cents higher than the prevailing level this time last year. but there was no exceptional amount of business. The spinners, however, continued firm in their price ideas in the face of some lost business as a result of it. A buyer's market apparently was imminent.

The third week brought along a more encouraging stability in cotton, and with a continuation of the spinners determined attitude, a hike in the general asking price in the market was put into effect. The two determining factors —cotton and a loosening up on the part of the buyers in the finished goods market—developed favorably, and there was a decided improvement in the market situation generally. There also seemed an influence coming from the fact that some of the mills selling direct had taken a stronger position as regards rates, which made itself felt in the regular market channels. Stocks of yarn for spot delivery seemed to be light, generally, and occasional rallies in cotton proved of assistance to the spinners in strengthening the market value of their yarns.

Last week an increase in the market operations of the buyers generally was especially noticeable, and along with this came further raises in yarn values and what seemed a more or less permanent stiffening in rates, particularly applicable to carded yarns. Spinners, it seemed, were finding business which showed moderate profits, at least, but it was pointed out that yarns of the better qualities were especially receiving the active interest of buyers. In the increasing of rates, spinners seemed to be pretty well in line with one another, with the result that the basic level was raised a cent or two, All in all, the trend of conditions seemed to point to what, in the usual dull market conditions, could properly be referred to as a buying spurt.

Philadelphia prices on February 15th follow:

Single Skeins.

4s to 8s	29½	10s	30½
12s	31	14s	31½
16s	32	20s	33½
24s	36½	26s	37½
30s	38½		

Single Warps.

10s	31½	12s	32
14s	32½	16s	33
20s	34 @35	26s	38
30s	39	40s	49

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twist	30½
8s and 9s tinged tubes	28½
8s 3-4 hard twist waste	27½

Two-Ply Skeins.

8s	30	10s	30½ @31
12s	31½	14s	32
16s	32½	20s	34 @35
24s	36½ @37	26s	37½ @38
30s	38½ @39	40s	48

Two-Ply Warps.

10s	31½ @32	12s	32 @32½
14s	32½ @33	16s	33 @33½
20s	35 @35½	24s	37 @37½
26s	38 @38½	30s	39 @40
40s	49		

Frame Spun Carded Yarn on Cones.

8s	29½	10s	30
12s	30½	14s	31
16s	31½	18s	32
20s	32½	22s	33
24s	34½ @35	26s	35½ @36
30s	38 @38½	40s	47
30s double carded	39½	30s tying in	35½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	43	20s	45 @46
24s	47	30s	50 @51
40s	54 @56	50s	60 @63
60s	65 @67	70s	75 @78
80s	87 @90		

Combed Peeler Yarn on Cones.

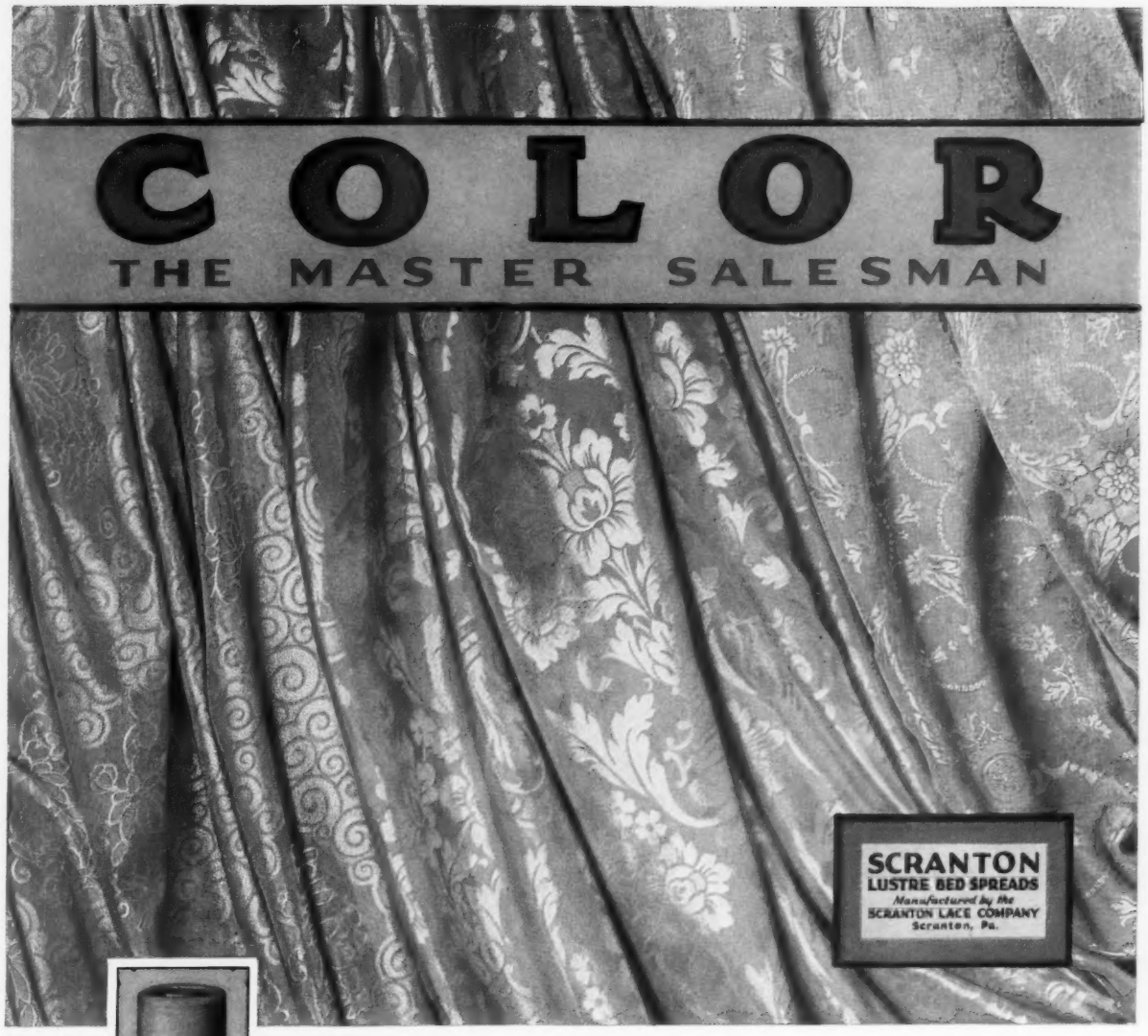
18s	40	24s	43
30s	47	36s	50
38s	51	40s	52
50s	60	60s	65
70s	75	80s	87

Mule Spun Carded Yarn on Cones.

10s	35	12s	35½
14s	36	16s	36½
18s	37	20s	37½
24s	39	26s	39½
30s	41½	40s	52

Mule Spun Combed Peeler Yarn on Cones.

10s	44	12s	45
14s	46	16s	47
18s	48	20s	49
22s	50	26s	52
28s	53	30s	57
36s	59	38s	60
40s	68		



A FRANKLIN PACKAGE
OF DYED YARN

It will deliver freely, either by rotation or over end, substantially lowering winding costs.

THE tremendous demand for colored bedspreads has practically relegated white crochet and satin spreads to the discard. Women insist on bright, cheerful bedrooms. They want style and harmony —and colors of lasting durability.

The Scranton Lace Company has met this demand with new, attractive designs in soft, blending colors, dyed with the fastest dyestuffs known. That it has paid this Company to use only the best colors is proven by the steadily increasing sales they enjoy year after year.

Colored yarns used in these spreads, both cotton and rayon, are dyed by the Franklin Process with fast-to-bleaching shades (vat colors), the fastest colors in existence to washing, light, and all color-destroying agents. This method of dyeing the yarns under pressure effects thorough penetration of the fibres by the dyestuff, yielding exceptionally even, durable shades. The yarns are delivered in the convenient Franklin Package form that delivers freely either rotating or over end. Skeins and chain warps are eliminated and substantial savings effected in winding costs.

But simply making prompt deliveries of colored yarns in economical packages does not by any means end our service to this Company. We have also assisted by developing new colors in our laboratory. There are other important services we render users of Franklin Process Yarns. The success of "Scranton Lustre Bedspreads" is visible evidence of the results achieved through the use of Franklin Process Yarns and Franklin Process Service.

We may be able to co-operate with you just as successfully, and we will be glad to study your color problem and give you our honest opinion as to the possibilities of increasing your sales. Simply let us know when our representative may call.

FRANKLIN PROCESS COMPANY

Largest Job Dyers of Yarn in America
also Yarn Spinners, Manufacturers Glazed Yarns, Dyeing Machines

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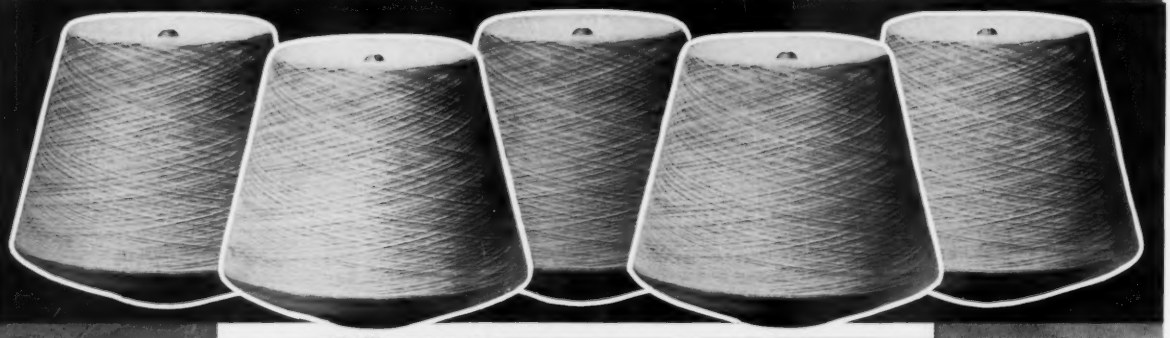
CENTRAL FRANKLIN PROCESS COMPANY
Chattanooga, Tenn.
FRANKLIN RAYON DYEING COMPANY
Providence, R. I.

FRANKLIN PROCESS

Commission Dyeing of Yarn in the Wound Form

Ad No. 228-A. Printed in U. S. A.

"UNIFORM" CONES,



At About ⅓ Cent a Lb. on 20/1 Average

AS a knitter, are you interested in a rewinding proposition, where, by investing approximately one-third of a cent a pound for rewinding, on an average of 20/1s, you may save this amount many times over, as well as improve your knitted fabric?

It is the practice of many knitters who do not spin their own yarn to buy such yarns in the open market. This procedure opens up the possibility of the knitter finding himself with a supply of yarn from several mills, not only wound under varying humidifying conditions, but also with packages of several tapers and densities.

It has been proved that best results at the knitting machine come from a full supply of cones of uniform taper, density, and original conditioning. Therefore, an assortment of cones varying in these particulars on a knitting machine must produce irregular fabric.

The Universal No. 60-GF high-speed cone winder is accepted as the most approved machine for rewinding such supplies before knitting.

The cost of winding on the No. 60-GF coner from such packages is surprisingly nominal, and the resultant packages insure the knitter uniform quality of fabric, coupled with increased production through practically continuous operation of the knitting machine.

Further details will be furnished on request.

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UNIVERSAL WINDING

Ad No. 20. Printed in U. S. A.

The Knit Goods Market

Price competition among department stores and women's specialty shops featuring silk hosiery as a leader is, strange as it might seem at a casual glance, operating to the disturbance of manufacturers who have sought to maintain price stability. Shoe dealers for some time have been using hosiery as a magnet for attracting the attention of shoppers to shoes, profits from which seem to be large enough to cover the cost of handling hosiery at practically no mark-up. Then the idea found its way into the department stores and apparel shops where it seemed to be assumed coats and dresses could be made to carry the burden of eliminating profits from hosiery sales. And now, using these classes of Philadelphia retailers for illustration of what is reported a widespread custom, competition has advanced to a stage where hosiery, more particularly the full-fashioned, may be said to bear a close merchandising relation to sugar in the grocery.

A popular shoe store pays $11.50 a dozen for a mill line of stockings and sells them for a dollar a pair. The women's shops chafing under the competition thus inaugurated set out to meet the shoe store price and to some extent succeeded, without, however, matching its grade of stocking. Mills not too well supplied with orders but oversupplied with stocks were ready to help the dealers out of their plight, and manufacturers adhering to their established prices saw business drifting to others. The effect of all this necessarily was demoralizing, and eventually, with prices at an irreducible minimum, the complaining retailers are worse off than before they countenanced price competition.

Probably one result of the lowering of cost to the consumer is an increased consumption of full-fashioned silk hosiery, seamless hardly figuring in the fiasco. Certainly there is increased demand for irregulars from the stores featuring price. One shop made a lavish display of silk-to-top picot edge hose for a dollar a pair. An investigation disclosed the hosiery was largely of seconds, but this afforded little consolation for the shops striving to get adequate prices for the legitimate. Unidentified irregulars and price competition are said by retailers to be the chief ills of the hosiery business, and they confess they do not know the remedy. Manufacturers discussing the condition described lay the blame wholly to retailers, and there is manifest a more general disposition to co-operate more fully with regularly established jobbers.

But there is a type of jobber that receives little consideration from leading manufacturers—jobbers who scour the markets for stock lots intended specifically for quick turnover on a thin margin of profit. Manufacturers denominate them sharpshooters. They are out for goods for the price-competing retailers and manage to pick up some bargains, by playing one mill against another. But they are a disturbing factor, for both mills and legitimate jobbers. Despite the obstacles in the path of a healthy market, it is brisking up with the approach to Spring, a period that promises much improvement.

That perennial subject for discussion—how to dispose of hosiery seconds without loss to manufacturers while safeguarding the consuming public against deception—is again uppermost in the minds of various interests. As buyers will pay more for seconds not branded as such and brands often are removed, many manufacturers use no distinguishing mark, leaving it to the integrity of buyers to market the goods in a legitimate way. The Emmeth Textiles, Inc., offers no seconds under its own brand, selling them unidentified to only such buyers as will have them packed under their own brands, thus making themselves responsible for what they offer and how it is offered. The Harron Hosiery Mills marks its irregulars and puts them under its special packing not carrying its trademarked brand. But, it is stated stamping ink presumed to be indelible yields readily to a process by which the mark can be removed, which supplies a pretext for not bothering with marks intended to eliminate possibility of deception. It's an old story not unworthy of repetition in the existing condition of the market.

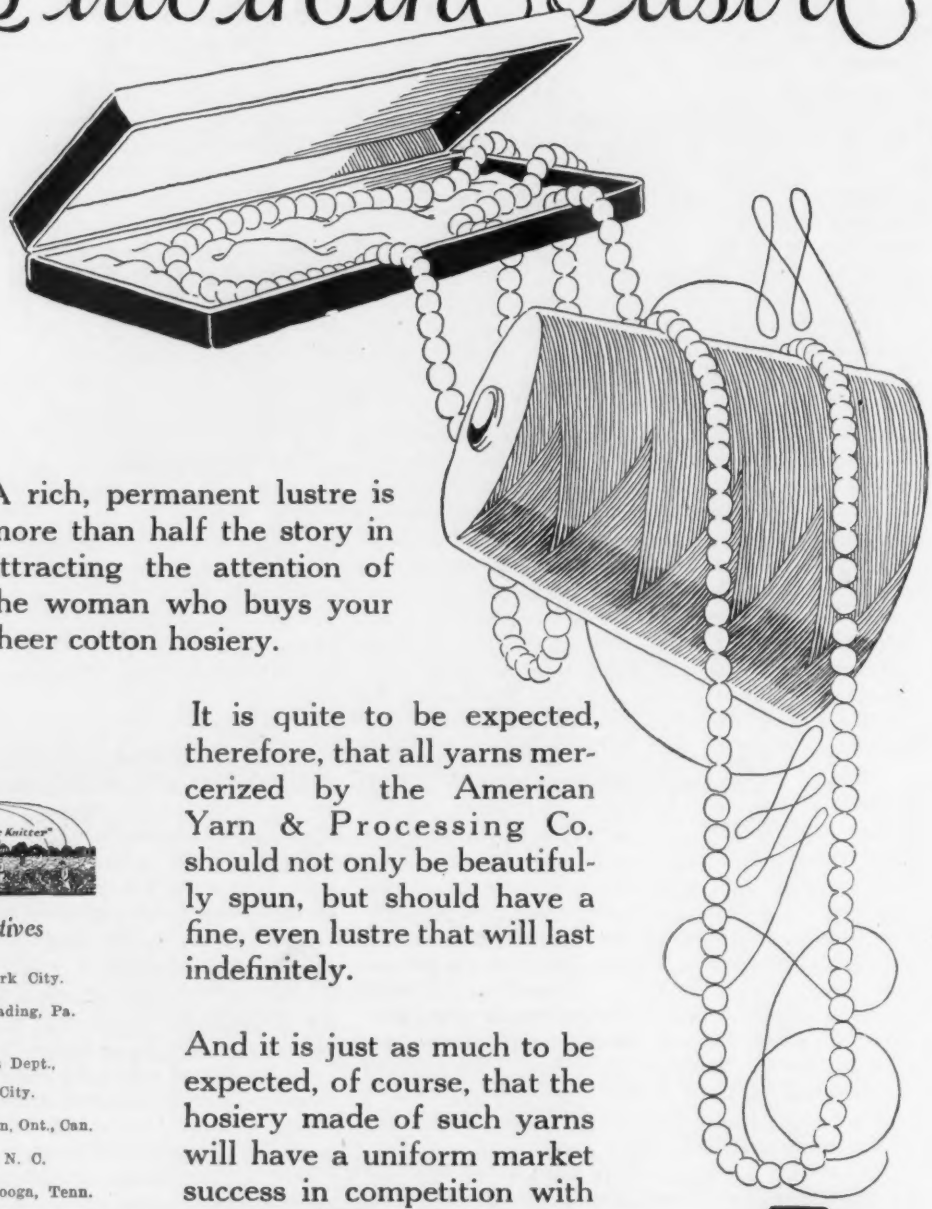
The trade is watching with keen interest the degree of success to be attained by the full-fashioned Bemberg stocking introduced in the two John Wanamaker stores at a dollar a pair, a price for which it was designed. The buyer for the Wanamaker Philadelphia store says it is meeting with a ready sale and he expresses himself as enthusiastic over its future. The line in question is by Brownhill & Kramer, a Philadelphia mill which previously had been successful with full-fashioned silk and rayon in combination.

Acceptability of fine gauge all silk seamless for a dollar has forced manufacturers to supply a meritorious dollar full-fashioned. This may have been achieved in the production of the Bemberg stocking. Whether it has or has not, it seems quite certain a dollar thread silk as a regular proposition is not far distant. When it arrives it will have to be more acceptable than the Bemberg article to make any headway, it is conceded in the trade.

Reversing the form of construction of a popular dollar stocking, a manufacturer is exploiting a line in which a seamless foot is bartopped onto a full-fashioned leg. The primary object is, lower cost of manufacture. The argument advanced in its support is that it meets the vogue for full-fashioned, which the maker attributes to propaganda, while doing away with the seam in the sole, to many wearers a source of discomfort. The stocking still is in the innovation stage, and how it will be received in the trade remains conjectural, as is the case with the Kitzmiller all-seamless fine gauge silk, which, as the description implies, does not have the seamed leg in simulation of the full-fashioned. It seems manufacturers are bent on innovations for giving an occasional spurt to the market, since, it is held, they have run the gamut of novelty heel construction, the square heel apparently having lost none of its prestige.

As a fair increase in the use of full-fashioned rayon hosiery is indicated in the reports of identical manufacturers for December 1927 and 1926 respectively, it seems reasonable to assume that Bemberg, differentiated from rayon by the American Bemberg Corporation, also will make cor-

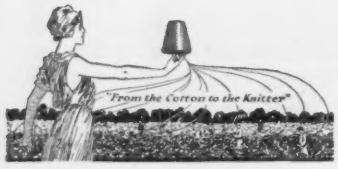
It's all in the Lustre



A rich, permanent lustre is more than half the story in attracting the attention of the woman who buys your sheer cotton hosiery.

It is quite to be expected, therefore, that all yarns mercerized by the American Yarn & Processing Co. should not only be beautifully spun, but should have a fine, even lustre that will last indefinitely.

And it is just as much to be expected, of course, that the hosiery made of such yarns will have a uniform market success in competition with merchandise finished by less perfect spinning and mercerizing processes.



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H. B. Robie,
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E. L. Hicks,
904 Washington Street, Reading, Pa.

Louisville Textile Co., Inc.,
Louisville, Ky.

H. B. Ketchum, Mgr., Export Dept.,
Room 1041, Cunard Bldg.,
25 Broadway, New York City.

G. C. Ellis,
Fairleigh Crescent, Hamilton, Ont., Can.

David Whitehurst,
409 Parkway, High Point, N. C.

R. D. McDonald,
924 James Bldg., Chattanooga, Tenn.

G. M. Hamilton,
1263 Pratt Blvd., Chicago, Ill.

H. B. Chapman,
Utica City National Bank Bldg.,
Utica, N. Y.

AY&PCo

American Yarn & Processing Co.

Mount Holly, North Carolina

responding headway. The reporting manufacturers account for an output of 11,862 dozens of rayon full-fashioned in December last year, while none was reported for the corresponding month of 1926, although it is known some was on the market at that time from a very few mills operating, it was explained, in an experimental way.

It may be noteworthy in this connection that in December last year 4426 dozens of full-fashioned rayon in combination with silk were reported, while identical mills accounted for only 839 dozens in December 1926. The gains in a twelve-month for all-rayon and rayon in combination may be accepted as indicating a drift to the lower price stocking as a more severe competitor of the seamless.

Again using the reports of identical manufacturers, the indicated output of women's seamless silk-rayon in December 1926 was 158,495 dozens, comparing with 116,260 for December 1927, a decline of 26 per cent. The drop in all-rayon production shows a much larger per cent, the figures for the corresponding months being, 175,622 dozens in 1926 and 69,295 for 1927, the decline being 58 per cent. Seamless thread silk fell off by less than 11 per cent or from 169,930 dozens in December 1926 to 151,574 in December 1927.

Making comparisons for the corresponding months of the two preceding years, women's full-fashioned silk gained around 10 per cent, the indicated output being 1,087,675 in December 1926 and 1,203,562 in December 1927. The steady expansion in the full-fashioned industry is shown in the figures for the last four years, when, according to statistics supplied by the Bureau of Census of the Department of Commerce, the production expressed in dozen pairs was approximately as follows: 1927, 14,351,893; 1926, 11,961,089; 1925, 9,141,327; 1924, 6,232,157. From the same source it is found that seamless output underwent only a slight decline, from 2,614,332 dozens in 1924 to 2,341,184 in 1927, these figures making it appear that the heavy gains scored by full-fashioned silk were at the expense of all-rayon and silk-rayon, plus increase in population.

That full-fashioned output this year will be greater than in 1927 is indicated in new machinery now being installed and contracts for equipment that will not be in operation until after the middle of the year. Some of the new installation is in Philadelphia, notwithstanding manufacturers maintain labor cost in that city is higher than in any other full-fashioned center. Considerable expansion is indicated in Reading and adjacent territory, but it is believed the more important additions to equipment will be made in the southern belt.

Just now there appears to be developing a stronger market for silk hose, and the usual Spring spurt is looked for. As is pointed out by manufacturers, they have each year three dull periods and as many, but longer brisk periods, the heavy selling of a year's output being confined to around seven to eight months, and some say tradition probably will hold good in 1928. Jobbers are preparing actively for a brisk Easter selling, while retailers are operating in futures very cautiously. This is held as accounting for the fact that, while numbers of large mills distributing through jobbers have been busy, some in Pennsylvania operating overtime, numbers of those selling direct to the retail trade are having a comparatively quiet session. Among the more active Philadelphia mills in the jobber division are the Apex, operating as a non-union plant day and

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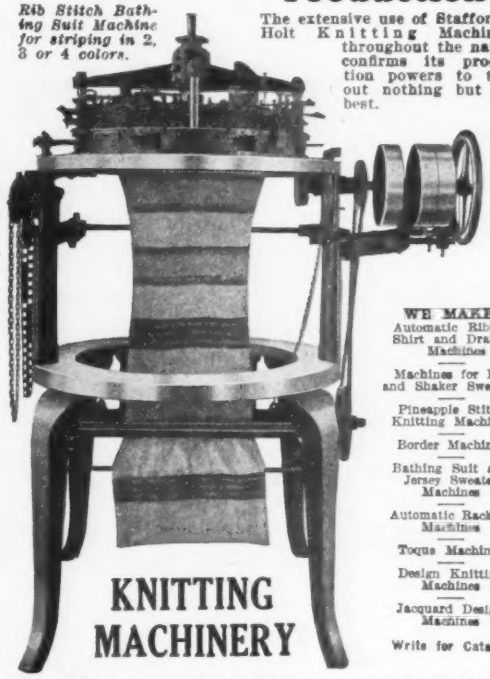
Rib Stitch Bathing Suit Machine for striping in 2, 3 or 4 colors.

The extensive use of Stafford & Holt Knitting Machinery throughout the nation confirms its production powers to turn out nothing but the best.



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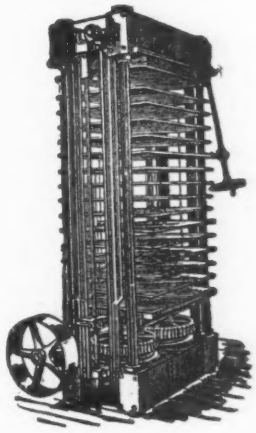

RELIANCE
Hot Plate Screw Press
FOR
Hosiery and Underwear
Write for Catalog and Prices
Reliance Machine Works
FRANKFORD, PHILA.

who goes there?

The leaders of the knitting industry and allied trades assemble yearly at Commercial Museum to visit the Exhibition and attend the annual meeting of the Association. Purchasing Agents, Chemists, present and future mill executives, Superintendents and all others, directly or indirectly interested in the industry.

what do they do?

The attendance at the Knitting Arts Exhibition represents tremendous buying power. The visiting mill-men examine, inspect and compare the myriad exhibits pertinent to their particular needs and businesses. Personal contact with the manufacturer is made and the inevitable result is . . . SALES. A few good spaces are left; reserve one at 329 Park Square Building, Boston, Massachusetts.

Knitting Arts Exhibition

APRIL 16 to APRIL 20

Personal Direction
Chester I. Campbell

Commercial Museum,
Philadelphia

Under the Auspices

National Association of Hosiery and Underwear Manufacturers

part night time schedules, and the Vogue Silk Hosiery Mills, producing 24 hours a day. The latter makes only 45-gauge chiffons. Two mills, because of financial entanglements, are idle and may be sold, as, it is understood, a prominent New York hosier is negotiating for the purchase of one, intending to operate for volume production of dollar full-fashioned silk for women.

Another of the Philadelphia seamless mills is offering its equipment for sale preliminary to entering the full-fashioned field. This manufacturer says he is making the change in the belief much coarse gauge full-fashioned machinery will this year be scrapped. This would appear subject to some discount, as the coarse gauge is expected to figure largely in the plan to manufacture dollar Bemberg and pure thread silk hose. The Colonial Knitting Mill, well known for its spring needle line, reports selling capacity output and demand well sustained. The Thomas W. Buck Hosiery Co., also in Philadelphia, is having a strong run on its line of 300-needle silk-to-top,one of the more popular latch needle types passing over the counter for a dollar a pair.

Hosiery manufacturers making comparison of present construction of silk hose estimate they are consuming more than 75 per cent less mercerized yarn than when the eight-inch hem and 20-inch silk boot were the vogue, and a well known mercerizer says the estimate does not appear an exaggeration. The bulk of the women's hosiery production, it is pointed out, is of chiffon silk to top and only a suspicion of cotton in the foot, while the medium service weight is, mainly, made with a four-inch hem. While chiffons look like the better guess for volume for this year, there seems increasing interest in seven and eight thread silk. Some retailers try to discourage customers selecting chiffons, which they describe as "beautiful but easily damaged," But, it is declared, the preference is for beauty, since cost of chiffon hose has been brought to a low level.

In the children's hose division the drift among northern mills is toward modernization of equipment rather than expansion, with the result there is keen competition in matter of patterns for seven-eighth length for misses, which are having a large sale for the Spring and Summer seasons. Some very attractive effects are seen in lines to sell for a half dollar, and these are in especially strong demand, a few mills reported in arrears with deliveries, with manufacturers having new equipment on order complaining that machine builders also are slow with shipments. For mills in step with the fashion trend there is business aplenty, and it does not appear that many of those which are out of step are in distress for want of orders. At the moment juvenile lines represent one of the more active divisions of hosiery, and boys' golf hose apparently leads in this respect.

According to observant manufacturers and distributors, girls this winter are wearing boys' golf stockings over their silk, as a matter of protection for leg and dress hose. This dispenses with the underhose for cold days, it is pointed out, the golf stocking taking the place also of spats. It is readily removed and pulled on before and after the afternoon or evening function at which silk hose must be displayed. This is one way for accounting in part for the season's spurt in sporty golf lines to sell at 50 to 75 cents a pair. A leading mill in Reading last month was promising no deliveries against new orders before the middle of May. One at Millheim, Pa., is and for some time has been operating full 24-hour days. The Randolph Mills, Philadelphia, already is working on samples for fall, as are other manufacturers, so that it appears that junior golf stockings are regarded a good guess into 1929.

As in half-hose, one difficulty with which manufacturers of misses' fancies for the higher price brackets have to contend is the swiftness with which their pet patterns are copied, for lower prices. It is shown, too, by a Schuylkill Valley manufacturer that identical patterns of 50 and 25 cent stockings are made on high price machines, the disparity in this respect being greater than in originals and copies, of similar fiber and fabric. It is noted, however, that mills generally are sharing in the healthy situation in juvenile hose, which leaves out of consideration infants' socks.

Trading in infants' lines continues spotty, with some manufacturers inclined to take a not too cheerful view of the outlook for the remainder of the production season. What has proved a strong line of socks for a leading specialty jobber is a full-fashioned German-made product, available at the counter for 50 cents a pair. It is in novelty design, in five-color combination. A well known importer whose supply was speedily exhausted says he could have sold 1000 more dozens, but refrained from reordering, on the theory that dealers place few repeat orders. "We have a nice profit on what we sold," the importer states. "Had we ordered more leftovers might have to be sacrificed and our profits perhaps wiped out. We would rather close out, even at a loss of a few sales, than take a chance on carryover goods."

While most of the domestic sock manufacturers complain that distributors are not taking their usual quantities and are late with specifications, one near Philadelphia says his shipments for the first half of the fiscal year 1927-8 are 20 per cent ahead of the outgo for the corresponding period of the previous year. This mill makes only the better grades, not in competition with the chain store variety for 10 cents a leg, and also produces misses sports and boys' golf lines, selling for only selected account. The management says they have not had a credit loss in the last nine years, a report, say others, that reflects good mill management and good merchandising.

An equally interesting showing is made by a dye establishment maintaining a laboratory for developing colors for its trade. In business twelve years, an executive states, its losses from bad accounts have been less than $200. Of the business, running into several million dollars in the twelve years, 90 per cent has been with hosiery manufacturers, and 80 per cent of the accounts are settled within ten days, subject to a trade discount.

Hosiery dyers are calling for more of the darker hues, with gun metal leading as to numbers of mills, and beige, smoke and French nude ranking next in the order mentioned. These colors are for silk hose almost exclusively, it is stated.

With manufacturers getting out their half-hose samples to be shown around July for the 1929 Spring season, novelties in no less variety than at present are indicated. Patterns of the higher class socks will present new complications, and it appears more attention is to be given to goods for the dollar a pair bracket, some mills focusing on lines to be sold for 75 cents, an in-between price that is held as

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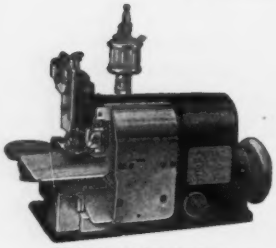


CLASS 60 MACHINE

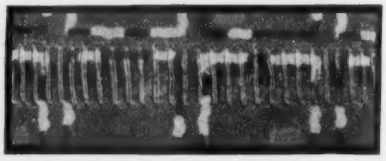
INQUIRE ABOUT NEW MERROW MACHINES

STYLES 60-ABB and 60-D3B

For simultaneously trimming and joining ends of cotton, silk or woolen piece goods with a

FLAT BUTTED SEAM

Permits goods to pass through finishing machines, uninterrupted, for such operations as Shearing, Calendering, Mercerizing, Bleaching, Dyeing and Printing—with *remarkable saving*—both in labor and fabric.



Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

STYLE 60 JDC —For two-thread **FLAT SEAMING** on Rayon Underwear.

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Inherent Yarn Qualities

Certain qualities inherent in Standard Mercerized Yarn make it pre-eminently the yarn for progressive textile mills.

Lustre, strength, uniformity and evenness are features which meet the requirements of the textile industry exactly.

By adopting Standard Mercerized Yarn you are paving the way for the most profitable operation of your plant.

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not having been popular, but fitting nicely into the scheme for pricing up and down. The 50 cent sock will, however, represent the cream of the business in half-hose, with a prospective good outlet for quarter dollar goods in copies of the higher priced.

Several mills selling to the retail trade report an improvement in demand for plain color silk half-hose, and it is stated there is a picking up in full-fashioned. The drift toward plain colors seems to have set in since the beginning of the year. December statistics showed a slight decline in production of both full-fashioned and seamless from the corresponding month of 1926, while seamless silk and rayon in combination scored a gain of almost 10 per cent.

Prices of fancy half-hose present an enigma. One of the larger New York primary market operators offered a line to a Philadelphia jobber for $3.75 a dozen. "Why should we put your line in when we are selling this number for $3.25," queried the jobber, pointing to a counter sample. The New Yorker, who confessed he "was licked," had banked on newness for his patterns. Some one with late models had preceded him. The jobber, who displays his entire line with better taste than most retailers display theirs, each number bearing the price tag, tells salesmen he will buy anything that is better than what he has. One salesman in five within a fortnight booked an order, the jobbers says. Such is life in the fancy half-hose game.

While business in hosiery as a whole did not measure up to expectations in the earlier weeks, it is shaping up well for Spring, and manufacturers as a body look for a satisfactory year, with the foremost getting the cream, in the sharpest competition experienced in years. Leading jobbers are operating on a more liberal scale and, with practically unlimited service to retailers, appear to be making inroads on the business of mills selling direct, in which they are aided by propaganda from organized retail interests.

Underwear.

Indications of a betterment in conditions for underwear mills were given in the call for a meeting of the Associated Knit Underwear Manufacturers of America to consider a ten per cent curtailment in output of heavy weight cotton ribs. In the market situation existing from the time prices for the current year were named, it was made apparent the chief ailment of mills was excess production. Numbers of manufacturers reduced their opening prices and in some instances a second cut was made. This, instead of stimulating jobbers to action, appeared to retard buying. As observed by one of the better known buyers, "had I placed my order a week or two ago I would have made a mistake, for since then there have been further reductions. My order is written, and will be placed when prices I have indicated as satisfactory are accepted or manufacturers give me a guarantee against more cuts."

This seemed at the time to fairly represent the attitude of buyers generally. They were banking on continued excessive output and increasingly keen competition and a state of demoralization which would practically enable buyers to name prices that some mills in distress would be willing to accept. Renewal of activity for co-operative buying by wholesalers, propaganda for which was launched about the first of February, was regarded in some quarters as evidencing a movement for forcing lower prices for quantity sales, and this probably gave to manufacturers a cue for

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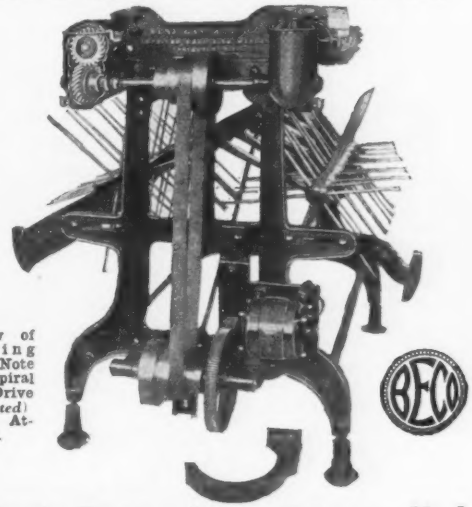

View of Driving End—Note the Spiral Gear Drive (*Patented*) Motor Attached.

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The pattern shown here was made on a Standard H Knitting Machine with the Attachment "R", style 2. This produces figure patterns in six colors. A real feature of this machine is the ease with which patterns can be changed. The operation is without the use of jacks.

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prompt action for preventing conditions going from bad to worse.

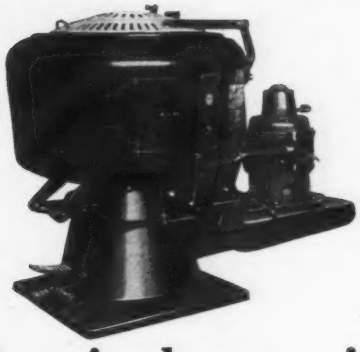
Eastern jobbers who have turned a cold shoulder to the cooperative buying proposal say there is an element in the West that is favorable to it, and that some large orders were placed on the cooperative plan, at a shading from established quotations. It was understood in the trade that a buyer representing ten or a dozen good size jobbers had gotten a concession of 25 cents a dozen on a mill line quoted regularly at $8.12½. While this lacked confirmation it was accepted in the trade as a fact, and viewed as representing about the extent mills would be expected to recede to obtain attractive bunch orders. Coincidental with the active revival of the cooperative buying proposal there emanated from the jobber camp something on the order of a tirade against manufacturer selling to buyers for groups of retailers.

Sentiment as elicited from representative eastern jobbers is not friendly to the cooperative plan for wholesalers. One buyer said, "we shall continue to paddle our own canoe, making our own selections and buying on the best terms offered, within reasonable limitations." Another stamped the movement a "joke," although he thought the co-operative method might be workable for jobbers handling staples. but certainly not to be applied to nationally advertised brands, whose owners select their distributors and have no difficulty in finding in any given territory a jobber glad to take over the distribution in the event any distributor desires to discontinue the line.

A jobber inclined to look with favor on the proposition said it would mean mass buying, which in turn would call for mass production and resultant lower overhead cost, followed in turn by lower prices to the consumer, which logically should augment consumption. Commenting on this phase, F. W. Slaughter, manager of the underwear department of the Sullivan Smythfield Co., Philadelphia, one of the larger jobbing houses in the East, suggested that mass production by a few given mills would lead to overproduction and price revisions by mills not getting a fair size slice of the co-operative business. As matters stood toward the end of February it remained to be shown what would be the effect of a curtailment understanding among manufacturers, and whether some mills starting on a curtailment program might not find a pretext for discontinuing it.

The curtailment proposal was launched shortly after a wage cut of 10 per cent went into effect in mills in the Mohawk Valley. If it shall be practiced to any material extent it is obvious the situation which brought about the lowering of operating cost will be doubly disastrous to the mill employees, something the industry has been trying to avert. It appeared to some interests that in the cuts in prices which followed in close succession, certain manufacturers were making a bid for the business which it was felt might develop through cooperative buying. Two southern mills, for example, reduced prices the same day, and a day later another of that group made a cut, simultaneously with similar action by a New York state mill, from two to three reductions being made since the opening in December.

Business in light weights seemed to be not much affected by what was going on in heavy weight cotton ribs, but there was some little uncertainty in the market for men's



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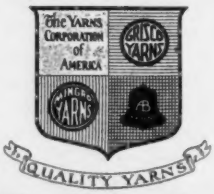

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light weight knitted, due to style change and a previous cut in prices of nainsook and kindred lines, which had been advanced early in the production season. Restoration of former prices apparently failed to improve conditions from the primary market standpoint, particularly as a former $1.50 nainsook union suit from a well known mill was put in the dollar bracket. Confusion over the cut-and-sewn and increasing use of rayon underthings for men necessarily have had an effect on bal briggans and ribs that is not encouraging to some manufacturers of the knitted.

Women's knitted cotton underwear, while doubtless continuing to lose ground to the silk and rayon garments, seems to be in a stronger position than a year ago. At least three mills in Pennsylvania and one in a southern state report more business for Spring than was taken in the first two months of 1927, and at least one found it necessary to increase output. There is reported much improvement in demand for 14-cut garments. A Schuylkill Valley manufacturer has been running from two to three weeks in arrears with deliveries. Machinery now is being installed for the manufacture of boys' shirts and misses' bloomers, union suits and vests of fine gauge construction. As usually happens about this period, women's rayon underwear is having a somewhat quiet session.

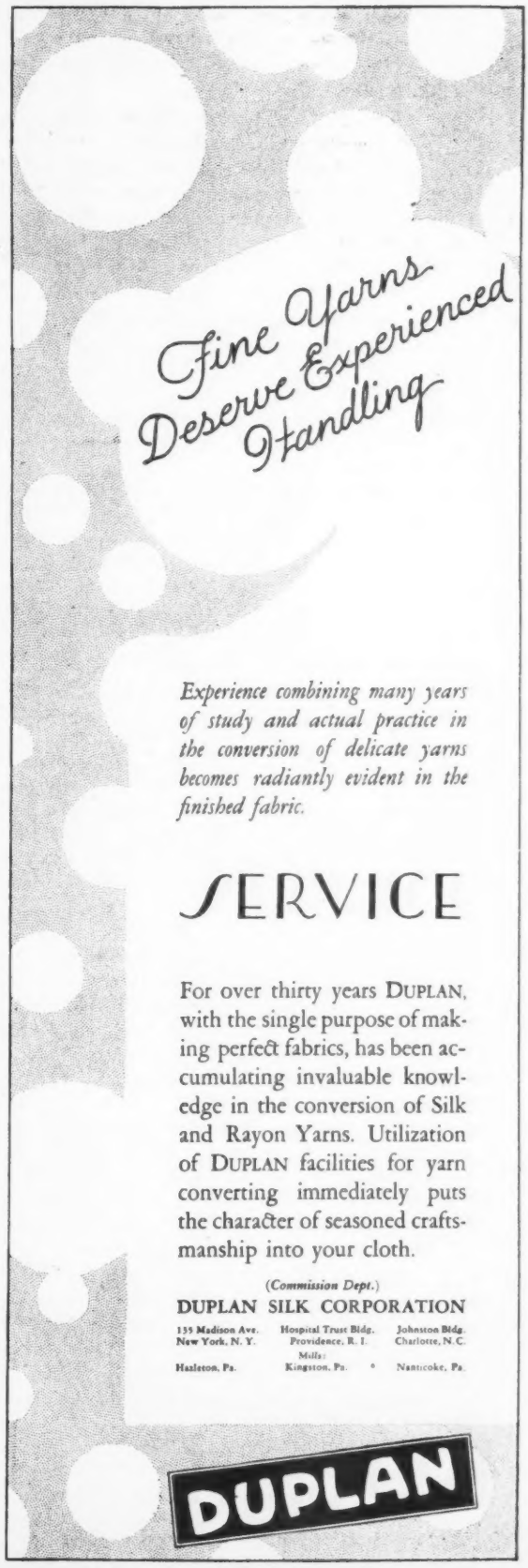
Sweaters.

The market for sweaters is devoid of features. There exists a semi-quiet situation which represents a psychology of conditions in the goods market generally, as reflected more particularly in heavy weight cotton underwear. Some of the sweater mills are at work on early orders, a few having taken a fair volume of business on the early buying movement. Except as to their Spring needs, jobbers are buying cautiously. Prices have been well sustained by the firmness of worsted yarns, which, spinners declare, will have to fetch more than current prices unless there be recessions in raw wool.

Manufacturers of shaker coats and other models in the more fetching designing will probably fare well in the first half of the year. But, it is predicted by some interests, the lumber jack is staging a partial comeback, and in boys' lines is promising of continued popularity. Then, too, there are the leatherette, moleskin and corduroy coats for heavy wear that may have a material bearing on the use of the knitted coats. Bathing suit manufacturers as a body appear to be well engaged, with promise of a big season.

Among the Knitting Mills.

The appointment of a receiver in equity for the Glen Knitting Co., Philadelphia, Pa., is believed by those directly connected with the two concerns, to mean the end of plans for merging the Glen with the Brown-Phelps Hosiery Co., a proposal that received the approval of the stockholders of both companies, each manufacturing women's full-fashioned hosiery. The receivership for the Glen was in response to a petition of creditors in which stockholders joined, and the receiver is E. Boyd Weitzel, of the Universal Products Co., a well known dealer in raw silk. One report is that the mill is to engage on a somewhat extensive scale in the production of full-fashioned silk hose for the retail trade, to be sold for one dollar a pair. The buildings of the Brown-Phelps company are being offered for sale, and preliminary to disposing of them preparation for the removal of the hosiery, dyehouse and box-making equipment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was begun several weeks ago. The president of both companies is Thomas E. Brown, whose other enterprise, Thomas E. Brown & Sons, recently underwent reorganization and now is the Windsor Mills.

Tex-o Hosiery Mills, Philadelphia, manufacturers of women's spring needle silk hose, will engage in the manufacture of full-fashioned hose exclusively, and has placed an order for 45 gauge machinery. It is understood the Tex-o has effected a working arrangement with a mill operating 42-gauge machines under which one concern will handle the output of both. The Tex-o has been selling direct to retailers.

It is currently reported that the Quaker Hosiery Co., Philadelphia, Pa., selling to the retail trade, will make a considerable installation of additional full-fashioned equipment. While the report lacks confirmation it is accepted as being true, particularly as the company has arranged to occupy much more space in its large building at 22nd Street and Lehigh Avenue.

Other Philadelphia manufacturers who are installing or will install 45-gauge machinery are the Lucille Knitting Co., Inc.; Fashionmaid Hosiery Co.; and Penn's Valley Hosiery Co. The Lucille has broke ground for a factory three times the size of its present building, in which 14 machines are in operation. Much of the new installation will be in production by the middle of Summer.

Dannemann Kuehnert Hosiery Co., Creltenham, a suburb of Philadelphia, operating 20 full-fashioned machines, will install an equal number of 42-gauge, and it is stated that the H. W. Anthony Co., Sinking Spring, near Reading, has provided for additions to its fine gauge equipment.

Merit Underwear Co., Shoemakersville, Pa., have planned to engage in the manufacture of boys' knitted shirts and children's union suits, bloomers and vests. The Merit is one of the more active manufacturers of women's cotton underwear in the Schuylkill Valley, and only recently considered adding children's lines.

The Iris Knitting Corporation, Pottstown, Pa., in February brought out a complete line of men's all-rayon underwear—union suits, step-ins and athletic shirts. According to the management, the first showings of samples resulted in scattered sales amounting in the aggregate to a much larger volume than had been looked for. The indicated retail prices for the several garments are $2.00 for the step-ins, $1.00 for the shirt, and $2.50 for the union suit. According to some wholesalers and retailers, sales of men's rayon underwear are fast increasing. The Iris company for some time has been making women's rayons. One of its leaders is a super-rayon bloomer, selling for $2.00, which is held as comparing with a glove silk bloomer ordinarily priced at $3.00 in retail stores. Of interest to the trade is a statement of the management that much of the younger generation of males is wearing rayon union suits the year around, as has been true of nainsook athletic suits.

According to report, C. S. Groves, of Hickory, N. C., is establishing a hosiery mill at Mountain City, Tenn. Production was planned to begin some time in March, in a mill building which was purchased.

The Chilhowee Mills Company, Athens, Tenn., has been formed to operate the Chilhowee Mill and the Fashion Mill, of that place. The board of managers appointed a committee composed of H. A. Vestal, chairman, H. P. Smiley, of Athens, and A. M. Tomlinson to select a building site and direct the construction of the building. It is understood that equipment from the two existing plants will be consolidated into one unit. Also, according to the report, about six full-fashioned machines will be purchased which will expand the company's production in addition to the circular knit products now being made. H. A. Vestal is in charge.

Holston Manufacturing Co., Knoxville, Tenn., is erecting an additional unit, in which 50 machines will be installed, it is understood.

Standard Hosiery Mills, Inc., Burlington, N. C., have reorganized with a capital of $1,000,000. The incorporators are John Shoffner, C. E. Fogleman, and J. T. Black.

Lock-Knit Hosiery Mills Co., High Point, N. C., have been incorporated by W. H. Slane and O. C. Durland, of High Point and F. T. Slane, of Statesville. W. H. Slane is president of the Slane Hosiery Mills of High Point. It is understood the Lock-Knit will erect a two-story building, 60 x 200 feet.

A two-story addition, 101 x 66 feet, is being erected by the Melrose Hosiery Mills, High Point, N. C., to provide for expansion.

According to report, Thomas Mills, Inc., High Point, N. C., have been organized by W. B. Thomas, Maurice L. Bales and R. R. Ragan, and a two-story mill, 60 x 150 feet, will be erected. The capital is $250,000.

Pauline Knitting Mills, Valdese, N. C., have recently installed 20 additional Scott & Williams H H machines in their new extension.

Sidney M. Edelstein & Co., Union, S. C., engineers, are arranging for the location of a rayon knitting plant at Wilson, N. C., in which rayon cloth for use in underwear, neckwear, scarf and dress goods, etc., will be manufactured. One-half of the capital is being provided by Berger, Sashin and Mandel, Inc., of 531 Blake Avenue, Brooklyn, N. Y., and the remainder has been subscribed by Wilson citizens.

Shoaf-Sink Hosiery Mills, Lexington, N. C., is constructing an additional building to provide for the installation of 40 additional knitting machines.

Ross Knitting Mills, LaFayette, Ga., have been incorporated with a capital of $10,000 by J. C. Abney, J. E. Edge, T. A. Cochran, and others. A complement of knitting machines for hosiery manufacture will be installed.

The machinery of the Oak Lane Knitting Mills, Murphy, N. C., has been purchased by the Pannill Knitting Co., Martinsville, Va., and will be installed in the Virginia plant for the manufacture of children's union suits.

Bennett Hosiery Mills, Bennett, N. C., has been organized and is installing machinery for the production of men's half-hose. W. C. Brewer is among those interested.

The capacity of the Anniston plant of the Cadet Knitting Co., Anniston, Ala., which was recently acquired by the Cadet people of Philadelphia is to be trebled according to present construction plans. Sidney M. Edelstein & Co., Union, S. C., are the engineers.

Zimmerknit, Ltd., Hamilton, Ont., makers of silk, all-wool, silk-and-wool hosiery, and silk underwear, the Harvey Co., Woodstock, Ont., makers of knitted underwear, and Hosiers, Ltd., Woodstock, Ont., makers of silk and wool, all-wool, fiber silk and thread silk hosiery, have amalgamated under the name of Zimmerknit, Ltd., with W. K. Harvey as president. The new organization will be financed by $750,000 6 per cent 20-year bonds, $850,000 7 per cent preferred stock, and 31,250 shares of no par value common stock.